

MODERN PACKAGING



PHOTO FOR MODERN PACKAGING BY TIETGENS

Paper wraps thrive on competition

September 1958

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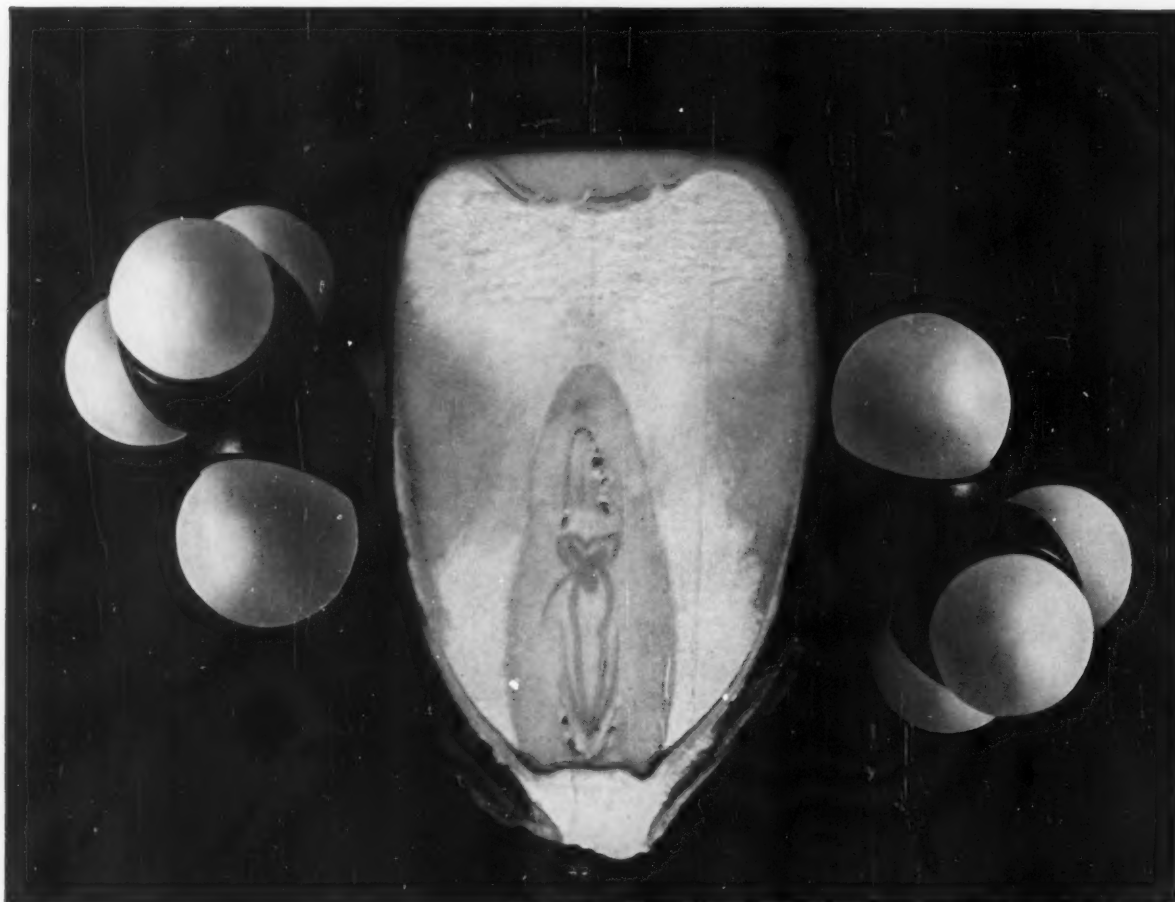


Illustration of magnified kernel of corn, courtesy of CORN INDUSTRIES RESEARCH FOUNDATION, INC.

How 'new chemistry' is modernizing adhesives

Our 'new chemistry' research has successfully cross-linked our unmatched knowledge of starch properties with our advanced knowledge of vinyl resins. The results have been exciting. Because we have eliminated many of the limiting characteristics of starch based adhesives.

Applied to packaging, this 'new chemistry' has produced adhesives that grip instantaneously to greatly increase machine speeds. Soft sealed cases now ship tightly closed yet open easily. Shipping cases with glued corner laps withstand blistering summer heat in boxcars. Phonograph record jackets are wrinkle-free and warp-resistant. To mention a few.

These modern adhesive developments are improving case and carton sealing, lap gluing, bag making, tube winding and the many other packaging and converting operations. We'd like to demonstrate their effectiveness in your own plant.

Too, we'd like to keep you informed of things to come. As a major producer of starch specialties—and a pioneer producer of vinyl resins—National is leading the way through 'new chemistry' to great advances in the field of adhesives.

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The finest in sheer protection

GOOD YEAR



Vitafilm, a Polyvinyl chloride—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

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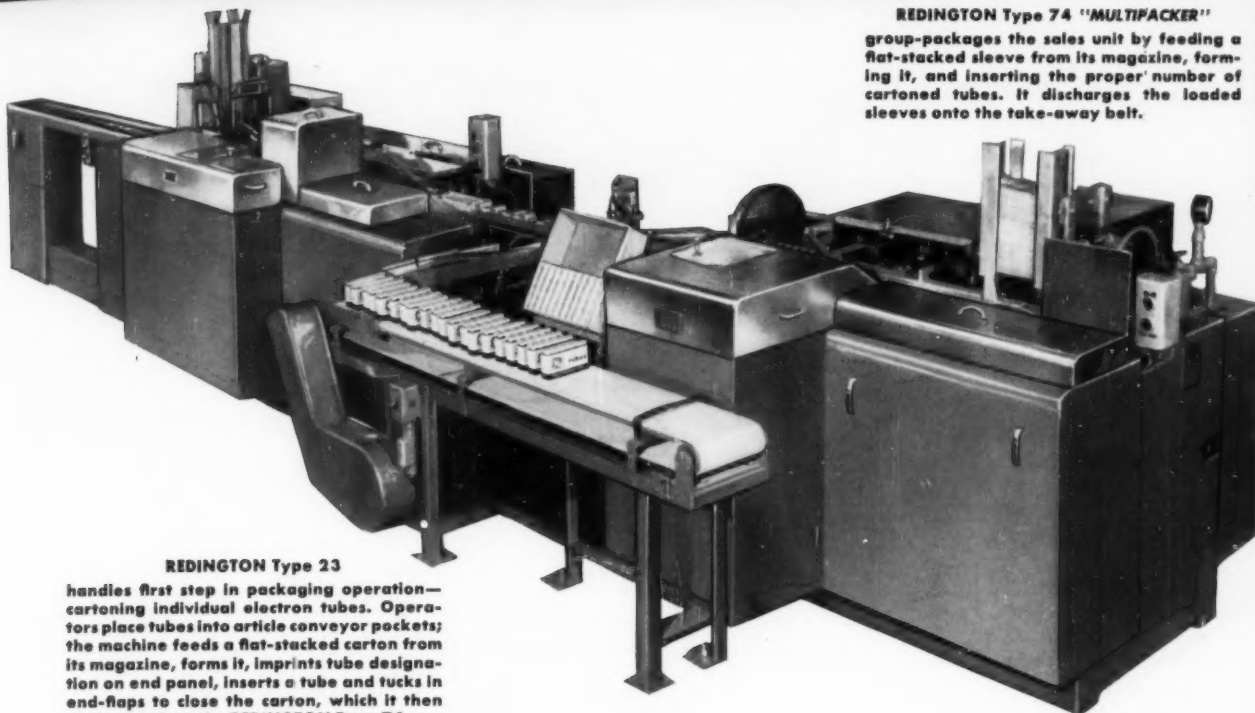
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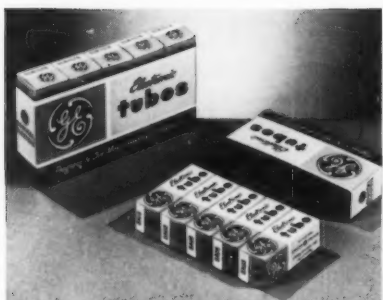
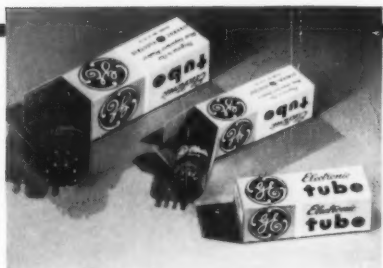
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REDINGTON Type 74 "MULTIPACKER"
group-packages the sales unit by feeding a flat-stacked sleeve from its magazine, forming it, and inserting the proper number of cartoned tubes. It discharges the loaded sleeves onto the take-away belt.

REDINGTON Type 23
handles first step in packaging operation—cartoning individual electron tubes. Operators place tubes into article conveyor pockets; the machine feeds a flat-stacked carton from its magazine, forms it, imprints tube designation on end panel, inserts a tube and tucks in end-flaps to close the carton, which it then discharges into the REDINGTON Type 74.



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pages of data, fully illustrated.

"Whole-Job" REDINGTON packaging line cartons single items, then Group-Packs them . . . *automatically*

Fast, efficient package production with a minimum of labor cost—that is what General Electric Company gets in their Owensboro, Kentucky, plant with this integrated REDINGTON line. The REDINGTON Type 23, which cartons single electron tubes, teams up with REDINGTON Type 74 "MULTIPACKER", which packages the cartoned tubes five at a time in a "mother" sleeve. Just one operator keeps carton and sleeve magazines filled; *every other step in the entire operation is automatic.*

These REDINGTONS can be easily adaptable to varying sizes of products and sleeves, so there need be no protracted down-time periods to eat into volume and add costs. Imprinting product designation permits lower carton inventories. And the packages pour out in a steady flow at high speed—REDINGTON lines like this one can produce 300 or more individual packages a minute.

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MODERN PACKAGING®

Let's capitalize on recovery

We'll leave to economists the job of explaining what's happening to business. More important is what's obvious—the slow slide seems to be gradually turning into a reassuring recovery that is significant to every businessman who packages a product. In scattered indexes there are enough evident signs to document our recent predictions that business this year would be anything but slack, particularly in packaging.

In this field, over-all strength has been drawn from the stability of the biggest packagers—food, drugs and tobacco, for instance—in which many companies have surprised their stockholders with sales records that failed to reflect the softness of business generally.

So a major share of advances in the months ahead will be measured not only in recovery but in new gains too—gains that will come from new business spread among important package users. What are the prospects that support this view?

In an optimistic report on consumer pricing, *The New York Times* foresees a year-long price stabilization except in food. And there the outlook for a reduction is based on "magnificent crops" and a long-term glut in meat. Perhaps more important is the fact that huge new plants and modern equipment will be ready for use in the period ahead, stepping up productivity at lower labor costs per unit of output. Inevitably, retail sales competition will become more intense.

This puts it up to package users to survey their markets and to recognize the legitimate demands of their customers—the supermarket executive and the housewife, for example. Will packagers now listen to the big retailers who don't like new package sizes that simply hog more shelf space without delivering more product and profit? Or to the housewife who wants more practical packages—packages that open easily without destroying vital directions; that she can use without contortion and that she can reclose quickly, neatly and completely? Or to the retailer who meets her demands and his own sales quotas by consistently stocking only the most popular brands in the most convenient packages at the most appealing prices?

Simple? It sounds too simple. Yet such questions can be put to packagers in every product line. And the packager who doesn't grasp this obvious challenge will miss his main chance to capitalize now on a recession that is about to become a recovery.

The Editors



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Diamond Walnuts wanted visibility. Yet, they needed moisture-proof and air-tight protection to keep delicate kernels fresh. Result, only double-wound Saran Wrap, with locked-in printing designed by Dobeckmun was chosen to do the job.



Packages for performance...

Dobeckmun's double-wound Saran Wrap* rivals nature in protecting the unique flavor of walnuts.

By using a package of transparent brilliance in which freshness itself is visible, the Diamond Walnut Growers continually sell the idea of using more and more of their product.

The package communicates to the customer's sense of taste, freshness and quality.

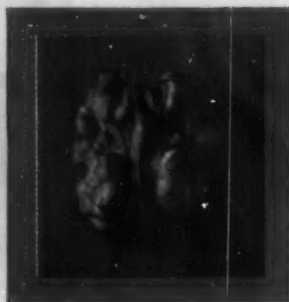
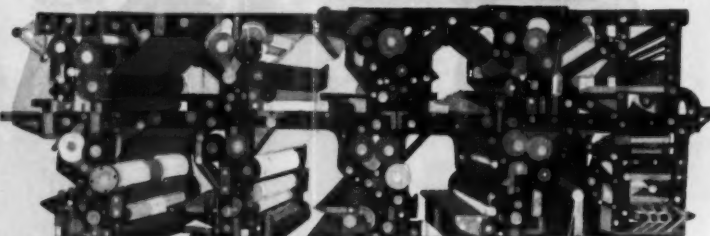
Back of this is precision planning to insure the highest degree of moisture protection, glossy appeal and brand identity. With the added advantages of low cost efficiency

on high speed form-fill-seal automatic machines, makers of candies, snacks, cookies and scores of similar products are discussing their packaging projects with

The Dobeckmun Company,

A Division of The Dow Chemical Company
Cleveland 1, Ohio • Berkeley 10, California
Offices in most principal cities

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strings, spouts,

shells and sprays



Engineered for speedy pumping and spraying action, this dust gun of ours works beautifully. Easily filled and refilled.



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Rockets and shells demand and get extra protection in Harcord Canisters. Where needed, this same protection is available for your products to provide moisture-vapor, grease or fungus resistance.



This canister* delivers full-strength, factory sealed protection until user pulls string to cut through package. Available in all shapes.

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*Patent #2820587



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CROWN

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Like General Mills, you too can count on the extra benefits of protection by *Riegel*: Product protection always, *plus* flexible packaging materials that are:

- ... tailored to run at high speeds on automatic machines
- ... made to your own specifications; printed, waxed, coated, and laminated combinations of all types
- ... priced to give the best possible protection at the lowest unit cost

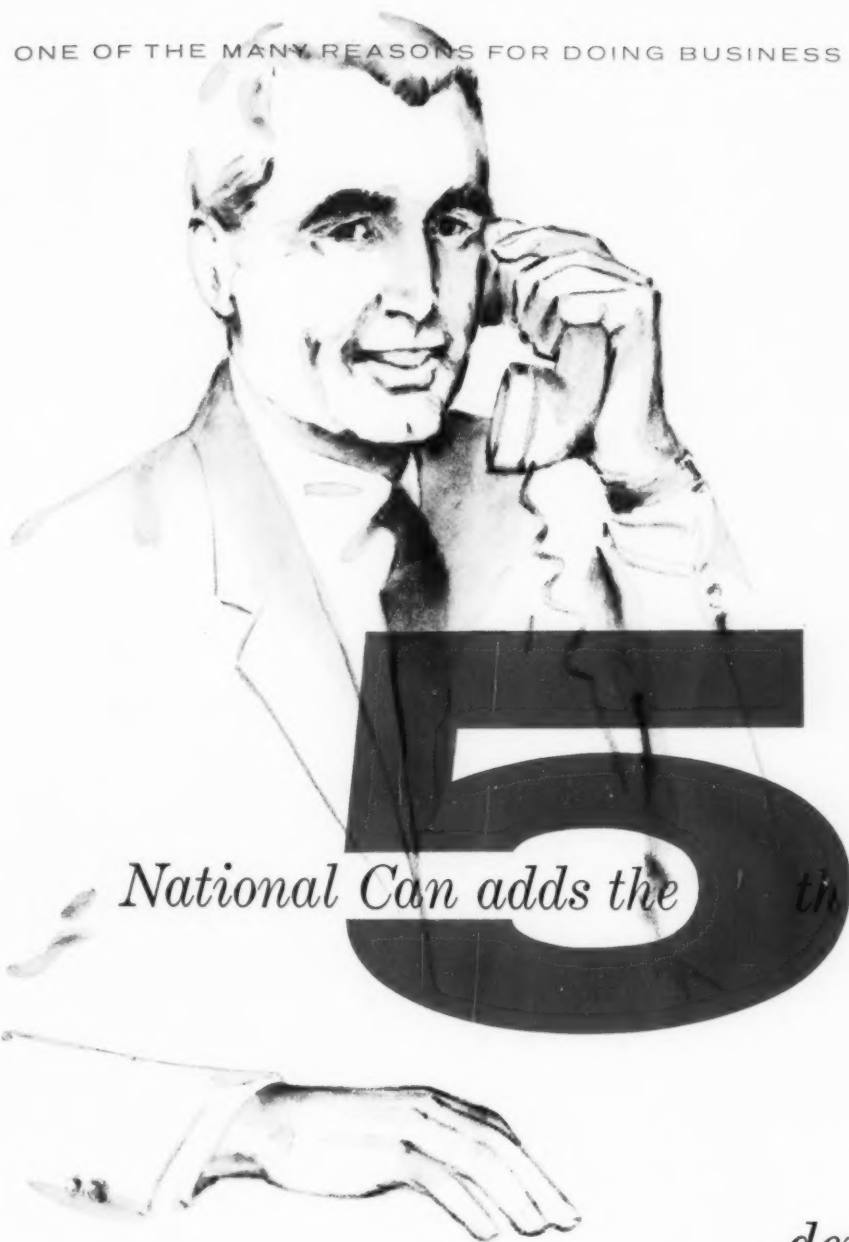
Hundreds of today's best-sellers benefit from Riegel's uniformly effective system of product protection. You can too. Write Riegel Paper Corporation, 260 Madison Avenue, New York 16, N. Y.

Riegel PROTECTIVE PACKAGING MATERIALS

Betty Crocker Meringue Mix is packaged in a special Riegel Pouchpak* consisting of printed pouch paper Poly laminated to foil. Packaged at high speed on Bartelt equipment. *TM



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service
dependability
and **INTEGRITY***

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FROM COAST
TO COAST



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The pour-out finish adds to the ease of pouring this famous product. But its added height called for a special closure.

By using cavities for an existing Armstrong cap . . . and building a new and shorter force plug . . .

Armstrong packaging specialists kept costs to a minimum while turning out this handsome cap. It accommodates the finish and forms a perfect seal.

Put this packaging know-how to work on your next package. Armstrong Cork Co., Lancaster, Pa.

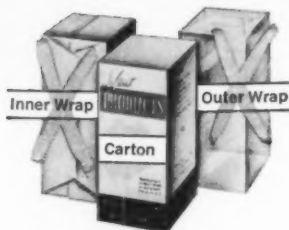
Armstrong PACKAGING

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Printable, Gluable Polyethylene On White and Colored Carton Stocks



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HUNDRED-MILLION-BARREL ROUND...
PABST SHINES OUT IN
BRILLIANT NEW LABELS
OF



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Beauty is, of course, the sales advantage of Reynolds Aluminum Foil labels... brilliance and color that stop the shopper's eye and attract her reaching hand. And aluminum not only provides, but also *maintains* this beauty. It repels dust, withstands wet refrigeration. And it makes the most of any light that reaches it... shines out on any shelf.

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CURL-RESISTANT STOCK NOW OFFERED AS STANDARD IN REYNOLDS FOIL BEER LABELS

By developing stabilized stock for standard beer label use, Reynolds has added another to its long list of label advances.

Reynolds pioneered in caustic soluble and water resistant inks, caustic soluble paper, water-resistant laminants, fade-proof colors. Reynolds leads the way!

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Shows the Brilliant Beauty of
REYNOLDS WRAP
ALUMINUM PACKAGING



bright lustre adds visual impact to the



squeeze bottle

it's
created
with

Nacromer[®]

SYNTHETIC PEARL ESSENCE

can this bright idea make your package a stopper?

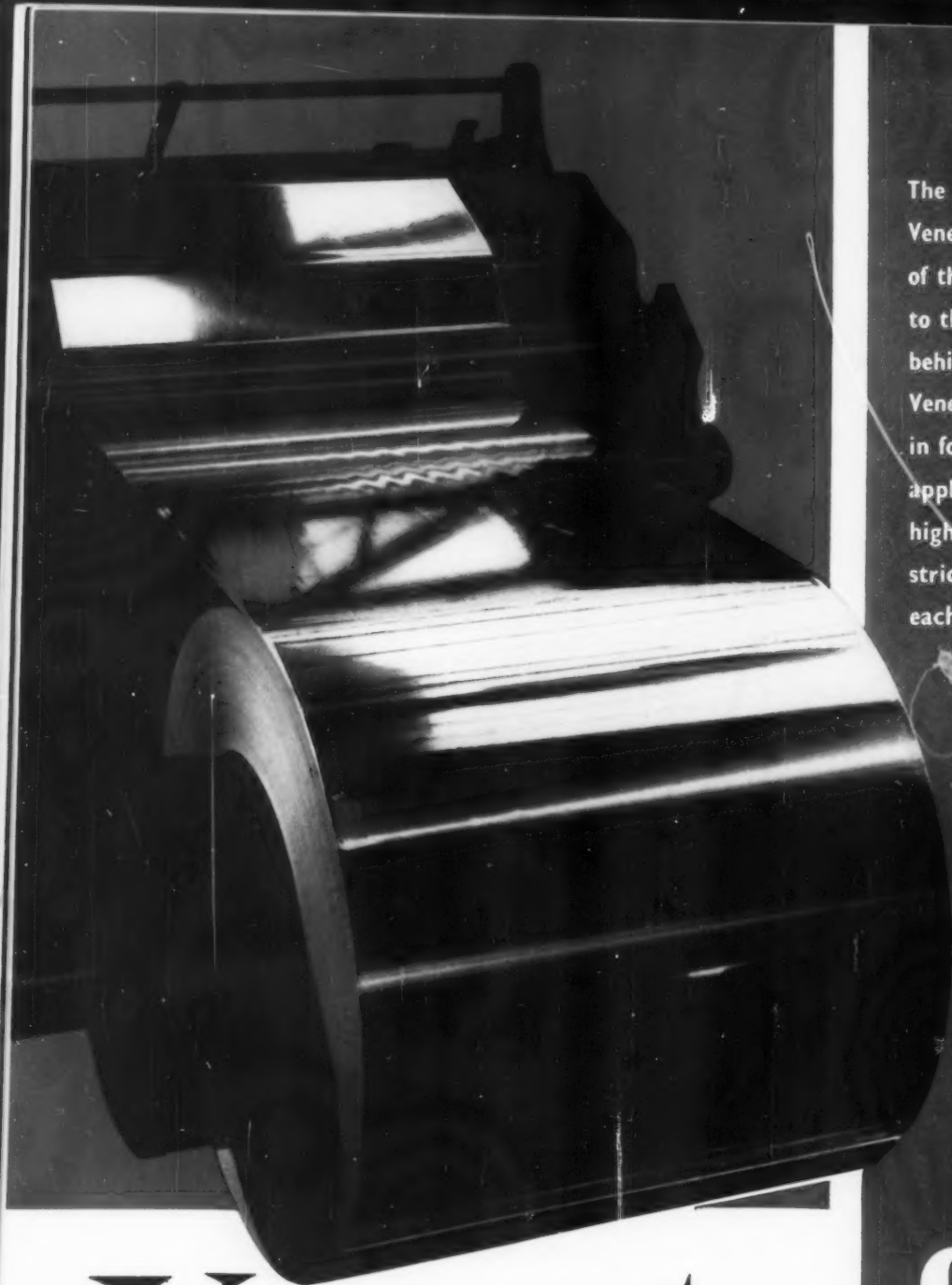
No dull, waxy polyethylene surface here! Instead, the Stopette Squeeze Bottle has a luxurious pearl-like lustre . . . created by incorporating Nacromer into the plastic. Without adding greatly to the cost, Nacromer vastly improves the sales appeal of the package. Made by The Plax Corp., Bloomfield, Conn., for Helene Curtis Industries, Inc., the Stopette Squeeze Bottle is an excellent example of what can be achieved with Nacromer.

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Nacromer may be the difference that makes a good package — your package — into a superior one. Write for complete details today.

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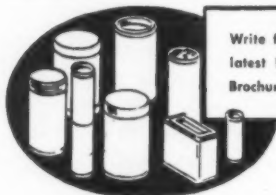
The compact container for moth cakes has a perforated top and hang-on eyelet. Both illustrate the versatility of CLEVELAND containers.

WRAPS AND LABELS are available in eye-catching combinations . . . all planned features that may be tailored to YOUR product . . . at low unit cost.

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Oct. 13, 14, 15, 1958
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DESIGNERS USE THE
MICROMETER FOR
PRECISION ACCURACY...**

BUT ESSENTIALLY

Package design begins with an idea

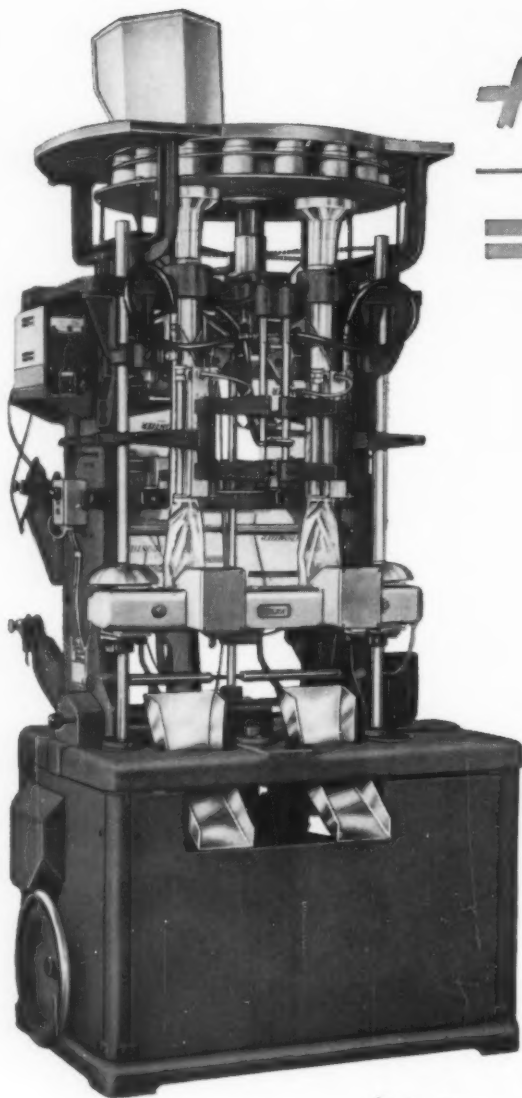
Every craftsman knows his tools, but the creative package designer must do more—first he must bring an idea to life. An idea that says Yes to questions like: Is this container distinctive? Will it sell on the shelf? Does it pack properly, ship safely? Our design department specializes in designs that stop the eye . . . start the sale. For an affirmative solution to your design problems, contact Maryland Glass Corp., 2147-53 Wicomico St., Baltimore 30, Md.



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Impulse sealing provides for the cut-off right at the seal, eliminating the tabs of conventional sealing resulting in substantial film savings.



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+ STOKESWRAP

== maximum protection
in flexible packaging for...

fruits and vegetables



hardware

chemical powders



frozen foods

candy



detergents

and many other products

To assure flexible packaging with maximum protection of the contents, STOKESWRAP forms clear or printed polyethylene film into a pillow type package having exceptionally high strength and resistance to rupture. This development makes possible the packaging of products heretofore too heavy to be satisfactorily handled by other materials.

A new impulse principle for sealing the polyethylene web results in strong, positive seals and eliminates film waste as well. Electric eye registration of printed film, sealing and cutoff are all achieved in one simultaneous automatic operation at high speed. The web is held in constant tension, with no reversing, for smooth, trouble-free operation.

A wide selection of feeds...pocket, auger, tablet counting, liquid, net-weight scale and special mechanisms... make STOKESWRAP well suited for low-cost high-quality polyethylene packaging of a great variety of products.



FOOD MACHINERY AND CHEMICAL CORPORATION
FMC Packaging Machinery Division

Putting Ideas to Work

Stokes & Smith Plant

4904 SUMMERDALE AVENUE, PHILADELPHIA 24, PA.



**36,000 PIECES A DAY
WITH A**



MODEL 40

CARTONER

Harold F. Ritchie, Inc., manufacturers of BRYLCREEM, have found that the CECO Model 40 is a great time-saver . . . a great money saver. Its low initial cost, versatility and ease of operation are unmatched by any other horizontal loading machine.

AUTOMATIC OPERATION

With the Model 40 handling the cartons automatically from hopping through closing, with the product inserted manually, Brylcreem cartons 36,000 tubes a day with only one operator. Other users report production up to 40,000 cartons a day per machine.

CUTS PACKAGING COSTS

The savings effected by the use of the Model 40 can be sub-

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Get the full details today. Write for brochure.

The CECO Model 40, like all CECO Glue Sealers and Cartoners, is a self-contained unit, mounted on casters for easy portability. Models are available to tuck both ends, or glue seal both ends, or tuck one end and glue seal the other. It can be used as a set-up machine to close one end only. It automatically produces clean, square, strong cartons at lowest cost.

CONTAINER EQUIPMENT CORPORATION

MEMBER, PACKAGING MACHINERY MANUFACTURERS INSTITUTE

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Go faster with gravure—



RISING COSTS have been rough on packages. Poor colors and thin inks, fast impressions on gray, rough stock—make many a once proud product appear pretty ersatz . . . at a time when it should look its best!

Never before has there been such an imperatively high premium on package appearance. Every supermarket shelf, rack and counter competes for the shoppers' attention and patronage. The weak, homely or pallid package slows sales to a walk . . . If your product lacks package appeal, go gravure—and watch it move faster.

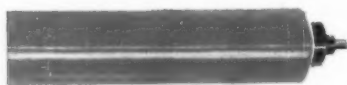
In the first place, *gravure is cheaper* on long runs. A chrome-plated, deep etched gravure cylinder will wear out a set of litho plates, and deliver clear, beautiful fresh impressions long after electros have been beaten to death in letterpress . . . And aside from quantity, gravure has a quality no

other reproduction medium can match!

Today most of the successful gravure packages, cartons, labels and wrappers have been printed from plates and cylinders processed by Intaglio. We start with your art, copy, layout; make color separations and full-value positives, etch and finish cylinders or plates for the most effective impression—and supply proofs for your approval and printing guides.

WITH over twenty years of pioneering experience and research, Intaglio has developed the highest reproduction skills in gravure. And five hundred craftsmen in four plants strategically placed, assure fast service.

For more sales appeal, and more action on store shelves, investigate gravure for your packages. Seven Intaglio offices are at your service.



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America's First Gravure and Letterpress Servicers

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PACKAGING

from START to FINISH



VERTI-PAK

Versatile one-man packaging plant. Forms bags from roll stock, fills, weighs, seals up to 45 packages per minute in one automatic operation!



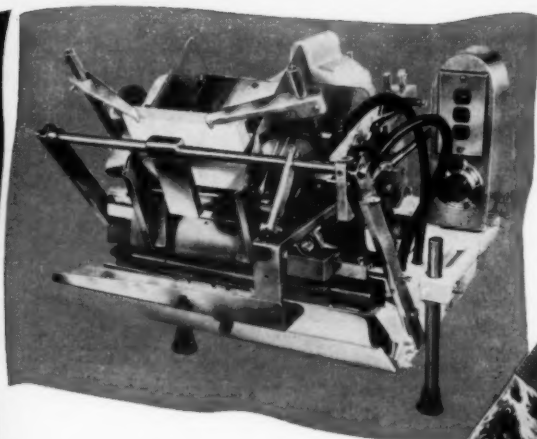
DRUM LINER

Standard equipment handles roll stock up to 40" in width.



STRIP-O-MATIC

Manufactures up to 250 filled pouches per minute, singly or in continuous strips.



LABEL SEALER

Seals saddle label over top of bags up to 10" wide and 4" high. Punches holes, date codes, automatically!



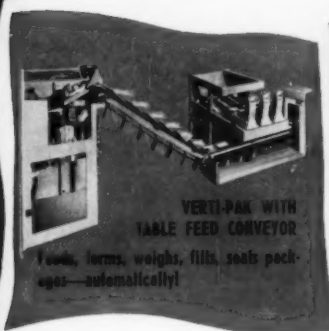
SEND US A SAMPLE OF YOUR PRODUCT

We will designate the model in our line which will serve your purposes best, or design a special machine if necessary.

We will submit Free Samples for your consideration.

from MERCURY

Years ahead in design! For better, faster production, at lower cost, there's a Mercury machine to handle most any packaging requirement from start . . . to finish!



VERTI-PAK WITH TABLE FEED CONVEYOR

Forms, fills, weighs, fills, seals packages—automatically!



POUCH MASTER

Automatically Makes, Fills and Seals Pouches using roll stock.

Accumulating Tables and Portable Take-Away Conveyor

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BAG HEADERS, TICKETS, FORMS and many other products can also be completed in a single run on one New Era Press. Bulletin tells all about it!



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Handles any heat seal, pressure sensitive or other label stock — any type of tag stock

This letterpress is for you! You can complete any type of label or tag, using any type of label or tag material, in a single run with one New Era Press at speeds to 7500 impressions per hour.

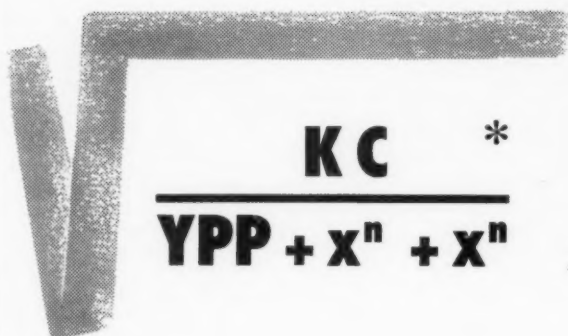
The New Era Bulletin shows how the New Era Press prints on any type of label or tag material, with flat electros, type, rubber or plastic plates . . . how it die-cuts any shape label or tag . . . how it slits, punches, perforates, numbers, and delivers the completed job — either cut off, rewound, or folded — at the end of a single run!

Write on your company letterhead today for your copy of the New Era Bulletin.

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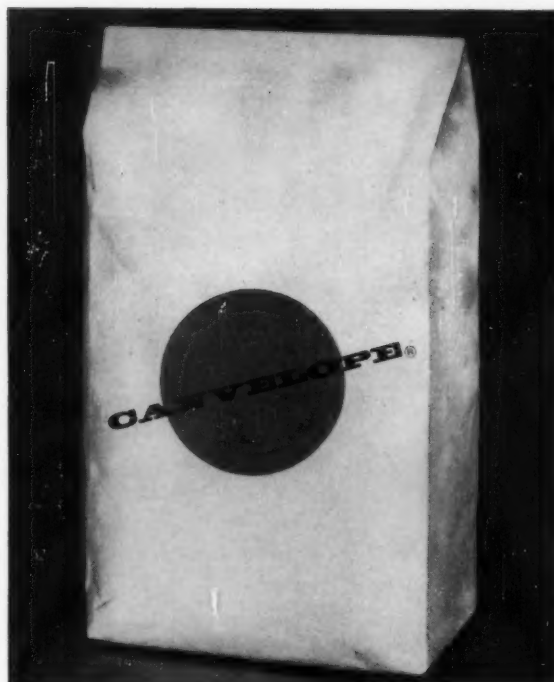
Packaging Formula Not Found in Books Solves "Problem" Products' Shipment, Storage, Display



We love tough packaging problems — and for over 40 years have been successfully solving them! And with "Canvelope" we believe we can lick your toughest assignment. It is an ideal container for products having extreme fineness, high specific gravity and/or sensitivity to moisture change, i.e., powders, cake mixes, drugs, etc.

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It's as tough as a tin can, yet flexible as a bag. It's air-tight and leak-proof — will not allow moisture to creep in nor its contents to seep out. It is ideally suited to packaging materials where change of atmosphere



or chemical nature generally cause short life or spoilage. Its inert plastic coated aluminum lining assures complete safety against such hazards.

Furthermore, it packs and travels easily; and its exterior surface is ideal for imprinting your own sales-stimulating design. In a word, "Canvelope" is the word. Why not look into it today by filling in and mailing the coupon below. We'll send you the confidential facts and samples r-u-s-h! Fair enough?

* Solution to the above formula is this: Kehr "Canvelope" over your Packaging Problem plus unknown factors of infinite variety, plus more of the same, equals the square root of just what you are looking for.

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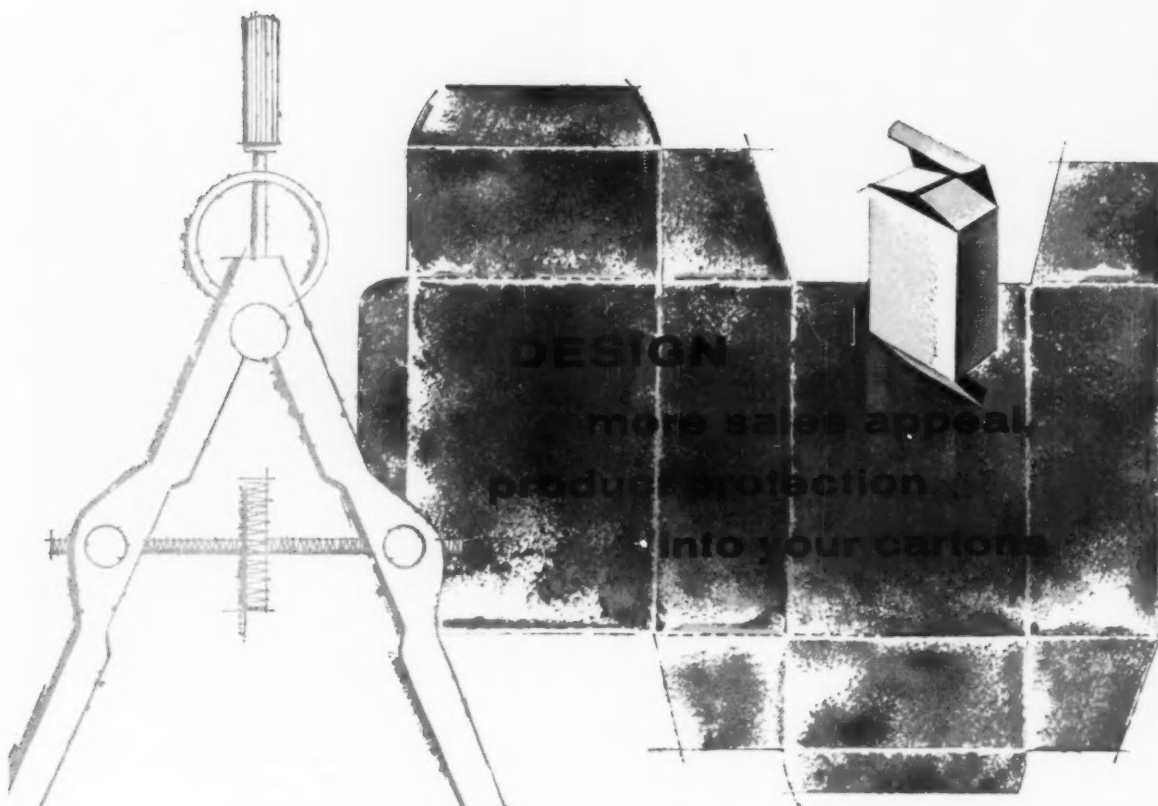
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Canvelope ☐ Clearvelope ☐

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WITH COCHRAN ALUMINUM FOIL

No other material gives your package that **STANDOUT SHELF APPEARANCE** as does sparkling Cochran aluminum foil. It is available in a gleaming array of colors, easily printed in any color, or embossed for an even more distinctive package. For product protection, foil is moisture and light-proof, grease-proof, heat-reflecting and is odorless—so essential in the packaging of many products. And when you design with foil manufactured by Cochran foil specialists you are assured that it is the finest available anywhere.

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- Our staff of foil experts is always ready to work with you in developing foil packaging for your prospects—in selecting materials, and on printing or other special problems. Just call us. And write for the new "*Foil Carton Board Manual*", Dept. M-9, 1430 S. 13th St., Louisville 10, Ky.

*When you buy aluminum foil
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ONE MEMBER WHO SPECIALIZES
IN CUSTOMER SATISFACTION**



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ALUMINUM**

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Bracon packaging moves products in the Household Field

BRACON polyethylene tubes, bottles, and squeeze cans are helping hundreds of household products to increase their share of market.

Gay colors . . . distinctive printing and unique display techniques catch shoppers at the point of purchase. Pliable plastic invites handling. At home they find convenient dispensing

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Squeeze-to-use packaging by **BRACON**

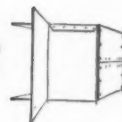
BRADLEY CONTAINER CORPORATION A subsidiary of American Can Company MAYNARD, MASS. • New York • Chicago • Los Angeles • Toronto



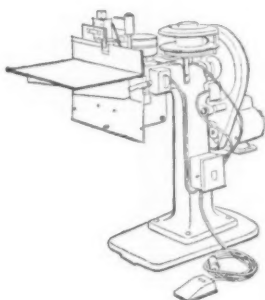


CLOSURE IDEA BULLETIN

For Users of Fibreboard Boxes

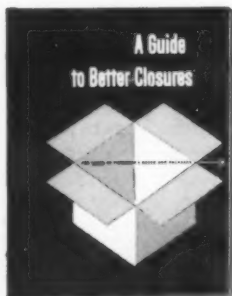


Box components--liners and corrugated media--are all fastened together with the positive clinch provided by wire stitching... clinches all flaps, too...especially important for boxes with wax, lacquer, or other special finishes.



600 full overlap boxes per shift are easily loaded and closed by one man with the HOHT Silverstitcher...can just as easily and effectively close 5-panel folders, and telescope boxes. W1-4 gives full details.

Free booklet, "A Guide To Better Closures" ...an impartial report on glue, tape, staple and wire stitching closure methods ...points the way toward greater savings, superior product protection...send for your free copy today.



Color comes to wire stitching...increases sales appeal of package. Acme Steel Colorstitch Stitching Wire is chip resistant ...available in a choice of 10 standard colors...normally available in 10 lb. coils...25 and 50 lb. coils available on special order. Colorstitch size available from stock is .103" x .020"...other sizes on order. AD-152 gives complete information.

Your Acme Idea Man is thoroughly trained in fibreboard box closure. His know-how is backed by the 75 years Acme Steel has helped industry solve closure problems. Write Dept. MDW-98, Acme Steel Products Division,

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ACME STEEL WIRE STITCHING



PROPORTIONAL

REGISTRON

New Champlain "Eye" gives automatic proportional correction

Model C300 Registron offers exclusive *standstill* phasing for selection of web scanner target and automatic zeroing-in of all phase micrometers — for minimum web waste prior to production. Color-to-color and cut-to-print mis-register are corrected instantaneously — *in direct proportion to the error*.

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Simple to operate — no special skill required. Automatic features insure immediate operational efficiency.

Write for Bulletin C300.



Champlain

Champlain Company, Inc., 88 Llewellyn Ave., Bloomfield, N. J. Chicago Office: 7356 N. Cicero Ave., Chicago 46, Ill. In Europe: Bobst-Champlain, Prilly-Lausanne, Switzerland



PAPER GOODS. "Mylar" makes the ideal overwrap for paper goods because of its glittering clarity, durability, long shelf life and handling efficiency.



MEATS AND POULTRY. Strong, brilliantly clear, heat-shrinkable "Mylar" HS offers the ultimate in color retention and freshness protection for ham, tongue and poultry.

VERSATILE



FOOD. For impulse food items, "Mylar" creates irresistible sales appeal with dazzling transparency. Its super-toughness, long-lasting protection and durability give "Mylar" a combi-

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TOYS AND HARDWARE. "Mylar" combines puncture proofness with the selling power of true transparency for hard-to-package toy and hardware items.



VACUUM PACKAGING. "Mylar" combined with polyethylene is the most effective material ever developed to maintain the color and freshness of luncheon meats and cheese.

MYLAR®

Here's why more and more packagers are using this durable clear film for tough packaging jobs

Du Pont's versatile polyester film, "Mylar"®, means many things to many people. The packager of sharp or pointed items thinks of "Mylar" as the *only* puncture-proof packaging material that also displays his product in a dazzling trans-

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Scores of other packagers rely on "Mylar" to add more sales power to their products. Perhaps "Mylar" could do a similar job for you. Your Du Pont Representative will gladly give you full details. Call him today, or write: E. I. du Pont de Nemours & Co. (Inc.), Film Department, Wilmington 98, Delaware.

*"MYLAR" is Du Pont's registered trademark for its brand of polyester film. Du Pont does not print, make bags or pouches of "Mylar".



TEXTILES. Clear "Mylar" has amazing tear strength, durability, long life. You can understand why smart textile manufacturers merchandise "Mylar" in their advertisements.



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BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY



With Bernardin. Quality is a **SERIES** of satisfactions



STEEL

A metal closure is made of steel. The die that stamped it out is made of a different steel. The tool that made the die is of a still different steel. Many of the steels come to us ready for use and require only check testing. Others, like the high-carbon, high-chrome steel we require for certain tools, are tempered in our furnaces and hardened to our own standards.

Pictured here, the hardness of a die is being tested. In the background a blank from that die is checked for accuracy.

At Bernardin, nothing is taken for granted. Thus, with steel, as with all production phases, each operation and the product of that operation is under continuous control with one purpose in mind. To produce millions of closures, each of which expresses "Quality" in all the functions required of it.

QUALITY METAL AND PLASTIC CLOSURES BY


BERNARDIN

Bernardin Bottle Cap Co., Evansville, Ind.



She sees it first on **NIBROC® WHITE**



...is just one example

Nibroc White—a paper especially engineered for highest brightness and eye appeal; for ease of handling, printability and strength!

Whether your specialty is flour, coffee, sugar, rice, cake mixes, cocoa, corn meal, dog-food...you can upgrade your package, boost its visibility with Nibroc White in

machine finish, super-calendered, embossed, or super-calendered and embossed paper.

LET US HELP YOU

We're looking for problems—your problems—in packaging. We'd like to point out the sales advantages of switching to Nibroc White. We will do exploratory work on new

white grades for specific packaging requirements.

Write to our Paper Sales Division, Dept. DR-9, in Boston.

BROWN  COMPANY

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Mills: Berlin & Gorham, New Hampshire

*Another leader
chooses*



**CERUTTI
ROTOGRAVURE**



MARATHON* now producing "HI-FI" packaging on CERUTTI "Model America" Gravure Press

Faithful reproduction of color is the keynote of Marathon's package printing operation. And that calls for equipment of the best—like the *two* CERUTTI presses Marathon recently added to its sizeable gravure facilities. Shown above in operation at the modern new Marathon plant in Neenah, Wisconsin, is the 6-color 44" "Model America" press. Equipped with two reversible units, two P.I.V.-controlled flexographic conversion units, and electronic tension controls on both unwind and rewind . . . CERUTTI's superior functional and design features make it a natural for the "HI-FI" performance required by this leading film, foil and paper converter.

*A division of
American Can Co.

*Let us show you why the
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press is the new choice
of the leaders . . . and
the best choice for you.*



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fashionable



practical

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low cost

EXTRUDED PLASTICS, INC.

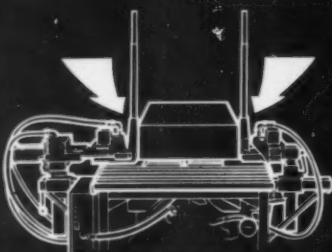
General Offices • Norwalk, Connecticut

Plants: Norwalk, Connecticut • Marietta, Indiana

The Age of Automation comes to carton-closing

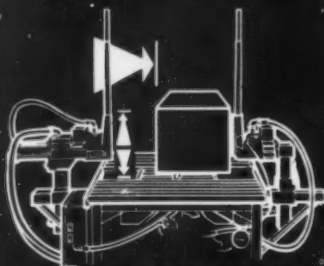
see the new

International TWIN-END STAPLER IN ACTION!



AUTOMATICALLY

closes both ends of carton at the same time—after it's filled!—up to 1000 cartons per hour.



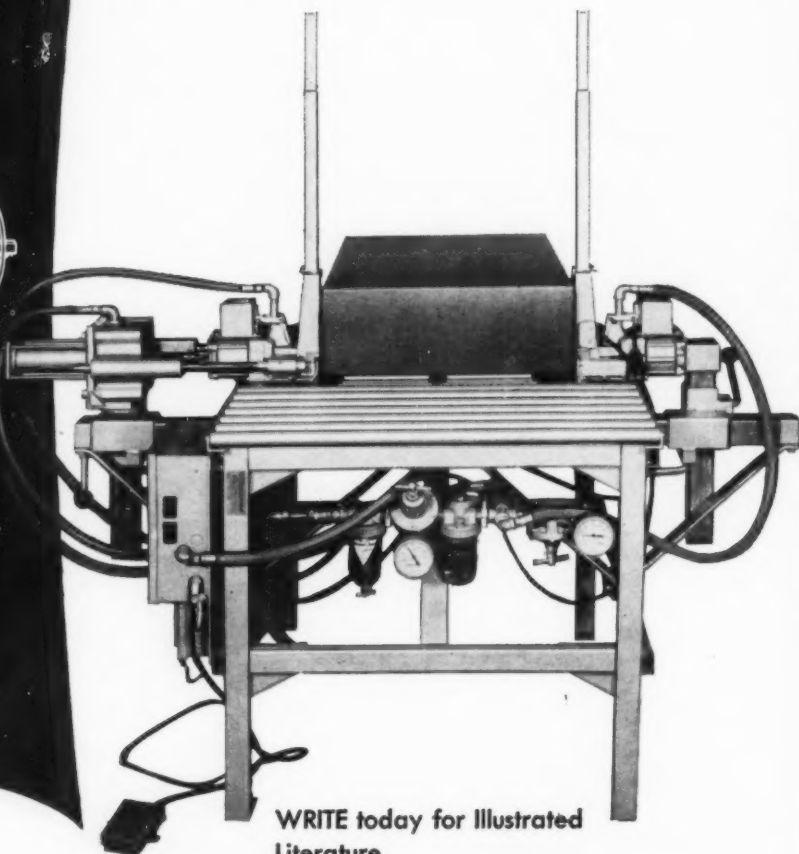
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adjusts to a wide variety of carton sizes and shapes! Stapling heads adjust for height; width of carton adjustment is automatic.



AUTOMATICALLY

powered by air and electric, for fast, effortless operation!



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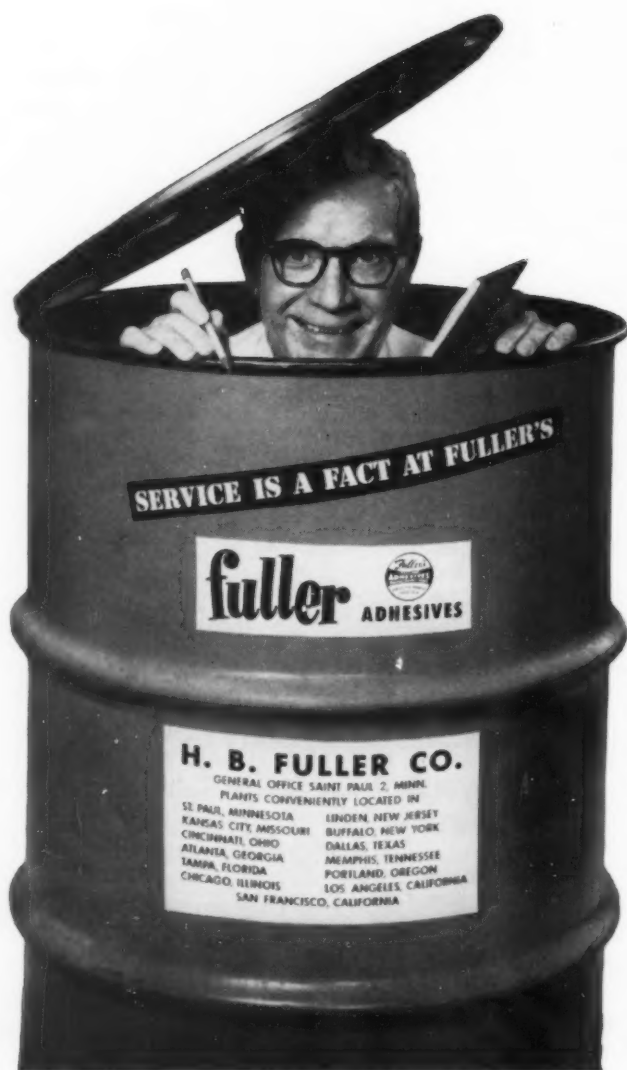
The point is, no matter what your adhesive problem, your Fuller man is at your service. Why not send for yours today? Write or call.

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Background

for

packaging

Notes,
quotes
and comments

Inventory is the key to recent slump and present recovery in business and inventory-conscious packaging men should note these facts well. Beginnings of the slump can be traced to the third quarter of 1957, when Gross National Product began to fall from \$440-billion annual rate to \$422-billion level in first quarter of 1958; of this \$18-billion drop, the swing from inventory accumulation to liquidation alone accounted for \$12 billion. In the first quarter of this year inventories were reduced at the unprecedented annual rate of \$9 billion, a fact that makes renewed purchasing inevitable.

Packaging supplies, equally subject to inventory depletion, may be in for a new build-up if a promising current development spreads throughout the field. Paperboard production, generally regarded as a key economic indicator, is the bright spot in the picture. While the Bureau of Labor Statistics report for July shows the all-commodities wholesale price index unchanged since mid-June, one of the few gains (0.4%) was registered by pulp, paper and allied products, due solely to renewed activity in wastepaper, which showed the greatest gain (19.2%) among all 92 commodities listed. BLS attributes this significant movement to "decreased supplies and strengthened demand by paperboard producers." And the Business and Defense Services Administration adds that "signs of improved demand for paper and board have been reported by mills—believed to be an indication of larger-volume business this fall."

Folding-box output—usually a bellwether for all packaging activity—appeared to have hit a recession low in April and to have returned to the up side in June. April shipments were 11.3% below the comparable month a year ago, May was still down (8%), but June showed a gain of 1.9% from 1957. Dollarwise, June was 3.3% over the 1957 month—the first plus sign in five months.

Note the implications in proposed reorganization of the Packaging Institute. New set-up will add to the present five divisions a sixth, to be known as the General Division, covering packaging education, engineering, public relations and—significantly—a new committee on art, design, merchandising and psychology. PI reportedly feels that it has been neglecting the merchandising aspects of packaging, intends to correlate these with technical functions.

Round of price increases in steel and aluminum appears to have left aluminum in a relatively favorable position in the can field. While aluminum went up 7/10 of a cent per pound, steel rose 2/10 of a cent. But since aluminum in April had taken a 2-cent cut, in a move forced by Aluminium, Ltd., of Canada, it is still about 1.5 cents better off competitively than it was a few months ago. And of course more cans per pound can be produced from aluminum than from steel. Note the first marketing of aluminum-canned beer in the Western Hemisphere (p. 106, this issue) and Continental Can's announcement that it will supply quart motor-oil cans at the same price as tinplate—with no salvage required.

Composition cans are by no means out of the picture. Oil companies are watching the potentialities of fibre-laminated cans, using various constructions of foil, paperboard and plastics, including polypropylene. Some feel that in the motor-oil field this will be the ultimate solution, rather than straight aluminum cans.

Retailer emphasis now is on cost-cutting features rather than salesmanship in packaging. In a recent six-months poll of retailers by the Folding Paper Box Assn., evidence was clear that decisions to accept or reject a packaged item more than ever hinge [Continued on page 40]

on its attributes for fast handling, speedy turnover and minimum inventory problems. Of retailers checked, 47% criticized some products for poor packaging; collective opinion was that better packaging could cut operating costs 4.5% and boost sales 7.4%.

Machine speeds are reaching toward unheard-of limits. One rotary machine designed to apply pressure-sensitive tapes to packages has been operated at 1,800 applications per minute. The question soon may be not how fast the machine will operate, but how fast the packages can be fed and carried away.

Predictions that plastic containers will replace paper milk cartons were voiced before the National Dairy Council by *Richard J. Speirs*, president of Abbott Dairies, Inc., Philadelphia. He called attention to the spiraling use of paper containers, pointing out that in Chicago at least 60% of all the milk sold is packaged in paper. "It seems entirely possible that before many years we will have plastic bottles that may perhaps be even cheaper to produce than the paper carton," Mr. Speirs said.

Package changes are driving cigarette dealers frantic. Just to cover the topmost popular brands, the average cigarette counter is now required to stock no less than 35 different shapes and sizes of packages, as against seven or eight a few years ago. Crowning touch, say dealers, was Marlboro's move to add a companion soft pack to its flip-top box—the package which touched off the revolution in 1955. Marlboro found that close to 50% of smokers preferred the soft pack. Not counting the variations in packages—and most leading brands now have two or three—there are no less than 92 brands now available to dealers.

Legibility testing is beginning to get serious attention from the Food & Drug Administration. So intent is the FDA on cautionary labeling that it would be interested in machines to set up reproducible standards for the legibility of such words as "poison" or "caution" on package labels. Manufacturers of such machines are now dickering with the FDA.

Steel containers represent the third largest use of steel products, according to latest figures from the American Iron & Steel Institute. Containers (including cans, closures, barrels, drums, shipping pails, etc.) account for 12.6% of consumption, being exceeded only by automobiles (15.2%) and construction (15.8%).

Watch the rise of film coatings containing volatile corrosion inhibitors. Among the users of polyester films with such volatile protective coatings are manufacturers of surgical blades and components for aircraft and missiles. Research in another direction takes in coatings with antioxidant ingredients. One laboratory has found that polyester film with an antioxidant ingredient in the coating will preserve wheat germ for at least four months at 120 deg. F.

New idea in bread wraps is a method of positioning design elements in the finished wrap so that brand identification can be spotted on the top and sides where it is most wanted, leaving 15 or more square inches on the bottom of the package for mandatory copy. Positioned design provides greater flexibility in the preparation of a basic design compared with continuous-printed bread wrappers, in which the basic design must be repeated frequently and at random. (See "The Forgotten Side," MP, June '58, p. 87.)

Screw caps, heralded as an answer to consumer complaints about the inconvenience of pry-off caps on glass containers, may not be an unmixed blessing. Although the screw caps are easier for the housewife to remove, there has been considerable trouble with curious shoppers opening and reclosing them in stores, causing food products to go back on the shelf with vacuum broken, resultant spoilage and potential food poisoning.

Background

for

packaging

[Continued from page 39]

One Source

DESIGNS

LABELS

FILM

YOUR LABEL CAN BE
YOUR BEST SALESMAN. IT
SHOULD HAVE THE
SPECIALIZED CARE OF
PACKAGING EXPERTS.
PACKAGE PRODUCTS'
NATIONAL AWARD-WINNING
DESIGNERS, BEAUTIFUL CONVERTED
FILM AND LABELS TAILORED TO NEED
CREATE PACKAGES THAT SELL!

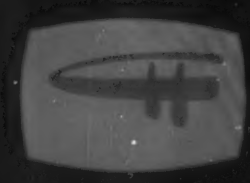
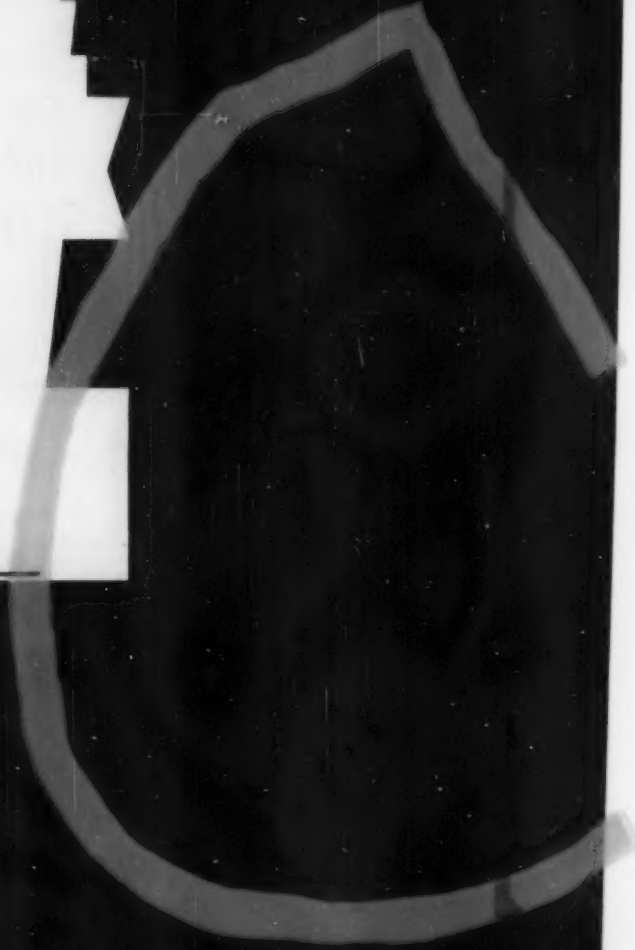


THIS PRESSURE SENSITIVE ROLL LABEL
BY PACKAGE PRODUCTS HAS PROVED AN
EFFECTIVE SALESMAN FOR SMITHFIELD
PACKING COMPANY, INC.

Package Products
Co., Inc.

CHARLOTTE, N. C.

Sales Offices: Dallas • Houston • Knoxville • New York
CONVERTERS OF FILM, FOIL, GLASSINE, PAPER - ROLLS,
SHEETS - BAGS, ENVELOPES - ROLL, DIE CUT LABELS -
RIDERS - BOX WRAPS - INSERTS



One Source

DESIGNS

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FILM

YOUR LABEL CAN BE
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SHEETS - BAGS, ENVELOPES - ROLL, DIE CUT LABELS -
RIDERS - BOX WRAPS - INSERTS



At the Cellophane Products Corporation plant in Providence — certified 6 hour 20 minute run was 35 rolls of MSD-53 cellophane in 28¼" width, 3100 lbs., three colors.

A finished roll every 11 minutes!

A Kidder Filmprinter prints, slits, splices in one continuous operation . . . while producing the highest quality of printing in excellent register and accurate sheet length, and with the very minimum of waste!

And Kidder, through their Performance Engineers, guarantees that you get these results. They set up your Filmprinter in your plant, check it for maximum operating efficiency, stay with your pressmen until they are fully educated to get this production from the press.

Who else does this? — Nobody but Kidder!

Kidder Press Company, Inc., Dover, N. H. Eastern Sales Office: Empire State Bldg., New York 1, N. Y. Mid-West Sales Office: 400 Washington Bldg., Madison

3, Wis. West Coast Representative: Bojanower Machinery Service Corp., 5270 E. Washington Blvd., Los Angeles 22, California.

Make Good Impressions Faster with



Flexoprinter,® Letterpress, and Gravure Presses, Slitters and Rewinders



Hair-spray container of ZYTEL® nylon resin is new, practical, has sales appeal.



Send for facts on aerosols. New on the market, aerosols of ZYTEL may solve your packaging problem and make your sprayed product a much-talked-about item.

Consumer research proves women are willing to pay more for aerosols in bottles made of Du Pont ZYTEL® nylon resins

"WOULD YOU BUY THIS NEW TYPE OF AEROSOL IF IT ADDED 15¢ TO THE PRICE?"—and 53% of all women queried answered YES.

"... IF IT ADDED 30¢?"—and 43% still answered YES.

In fact, up to 75% of those women who expressed a preference for aerosols over other types of containers were willing to pay 15¢ to 30¢ more for the new type.

These were some of the results of a recent consumer survey carried out by an independent research organization. This survey proved that women will pay a premium price for cologne and toilet water packaged in aerosol bottles made of ZYTEL nylon resin.

The survey showed clearly that these nylon bottles add considerably to the sales appeal of personal products. One particular advantage stood out above all the others... 65% of all people questioned were strongly in favor of a non-breakable container for toiletries, and these bottles are just that. They bounce undamaged off tiled floors!

Consider also the advantages in styling—graceful shapes, combinations of built-in colors, lightness of weight and translucency that lets the customer see how much is there. Furthermore, ZYTEL is unaffected by propellents and most spray mixtures.

Details of this valuable survey are available to you on request. Send for your copy now. We also welcome technical inquiries concerning the design and use of ZYTEL® for aerosol containers.



BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

E. I. du Pont de Nemours & Co. (Inc.), Polychemicals Dept.
Room 259, Du Pont Building, Wilmington 98, Delaware

☐ Send me your report: "COLOGNES AND TOILET WATER IN AEROSOL CONTAINERS—A MARKET STUDY OF CONSUMER ATTITUDES"

Name

Company Position

Street

City State

Type of Business

IN CANADA: Du Pont Company of Canada (1956) Limited, P. O. Box 660, Montreal, Quebec

Packaging Problem?

*Use your Encyclopedia Issue!
It's a fact-crammed workbook
for day-to-day problem solving.*

EXAMPLE: How to plan your package?

1. See section "Planning and Developing the Package" for sound approaches to the many-faceted problem.
2. Next, consult the Advertisers' Index on the first page of this section for advertising of packaging consultants, contract packagers and materials suppliers.
3. Then turn to Buyers' Directory for state-by-state listings of: packaging designers, contract packagers, engineering consultants, custom embossers and laminators, paper lithographers, independent research and testing laboratories, and sample and package distributors.
4. Check the "Review of Free Literature" insert, select all possible helpful publications and send for them with enclosed post cards.

EXAMPLE: How to improve packaging line efficiency?

1. Read the section "Efficiency on the Packaging Line" for a complete picture of the factors involved.
2. Then turn to the Advertisers' Index on the first page of this section and select ads whose contents bear on your problem.
3. Get further information in the Buyers' Directory: names and addresses of engineering consultants, machinery manufacturers and service organizations.
4. Look through the Encyclopedia insert "Review of Free Product Literature", select pertinent free publications and write for them on the conveniently enclosed post cards.

EXAMPLE: Which packaging machinery to buy?

1. Read section "The Machinery of Packaging" for all the fundamentals.
2. Then check the Advertisers' Index—on the first page of the section—for adjoining ads on filling equipment, cartoning machinery, unscramblers, etc.
3. Secure additional names and addresses of suppliers from Buyers' Directory rosters: capping machine manufacturers, makers of conveyors, labelers, bundlers, etc.
4. Examine insert "Review of Free Product Literature", pick out publications you want and send for them with enclosed post cards.

EXAMPLE: Where and how to use aerosols?

1. Get detailed application information in the "Aerosols, Valves and Propellents" section.
2. Then, for ads by aerosol component suppliers, see the Advertisers' Index on the section's first page.
3. Next, examine the Buyers' Directory for names and addresses of suppliers of aerosol containers, propellents, valves, loading machines, etc.
4. Check through "Review of Free Product Literature" insert. Select desired brochures and leaflets and write away for them on the enclosed post cards.

The Encyclopedia is expressly designed to help you solve your problems. Reach for it next time you need help and see how valuable it can really be!

MODERN PACKAGING ENCYCLOPEDIA ISSUE

. . . for fast, accurate answers to packaging problems



Sold – and Still Selling

This colorful ice cream bar wrap catches shoppers by the eye and makes them buy. The foil/paper/poly package *keeps right on selling* by protecting the bars so that they are sanitary, freezer-firm and flavor-fresh when served.

Western-Waxide's research, laboratory, design and production facilities can develop and produce packages that will *sell . . . and keep on selling for you*. To find out how, call your Western-Waxide representative.

*Increased Sales
...by Design!*



CROWN ZELLERBACH WESTERN-WAXIDE DIVISION

Headquarters Office: 2101 Williams St., San Leandro, Calif. • Plants and Sales Service Offices in Principal Cities of the United States

Manufacturers and converters of plain and printed waxed paper • foil • foil laminates • polyethylene coated paper and poly-film laminates • films • bags • pouches and other specialized flexible packaging materials

©



The Plus Container

Lighthearted Lunch . . . Your product says convenience—no fixin', no mixin'—when it's packed in this newest of rigid aluminum foil containers . . . For individual service or family meals, a foil container offers the sales appeal of heat-and-serve convenience. It's table-wise and cleanup free . . . We've created more containers than any other manufacturer. This wealth of experience is available to you. Send us an outline of your package requirements. We'll show you the advantages of rigid aluminum foil.

EKCO-ALCOA CONTAINERS INC.

WHEELING, ILLINOIS • WHITTIER, CALIFORNIA • LONG ISLAND CITY, NEW YORK

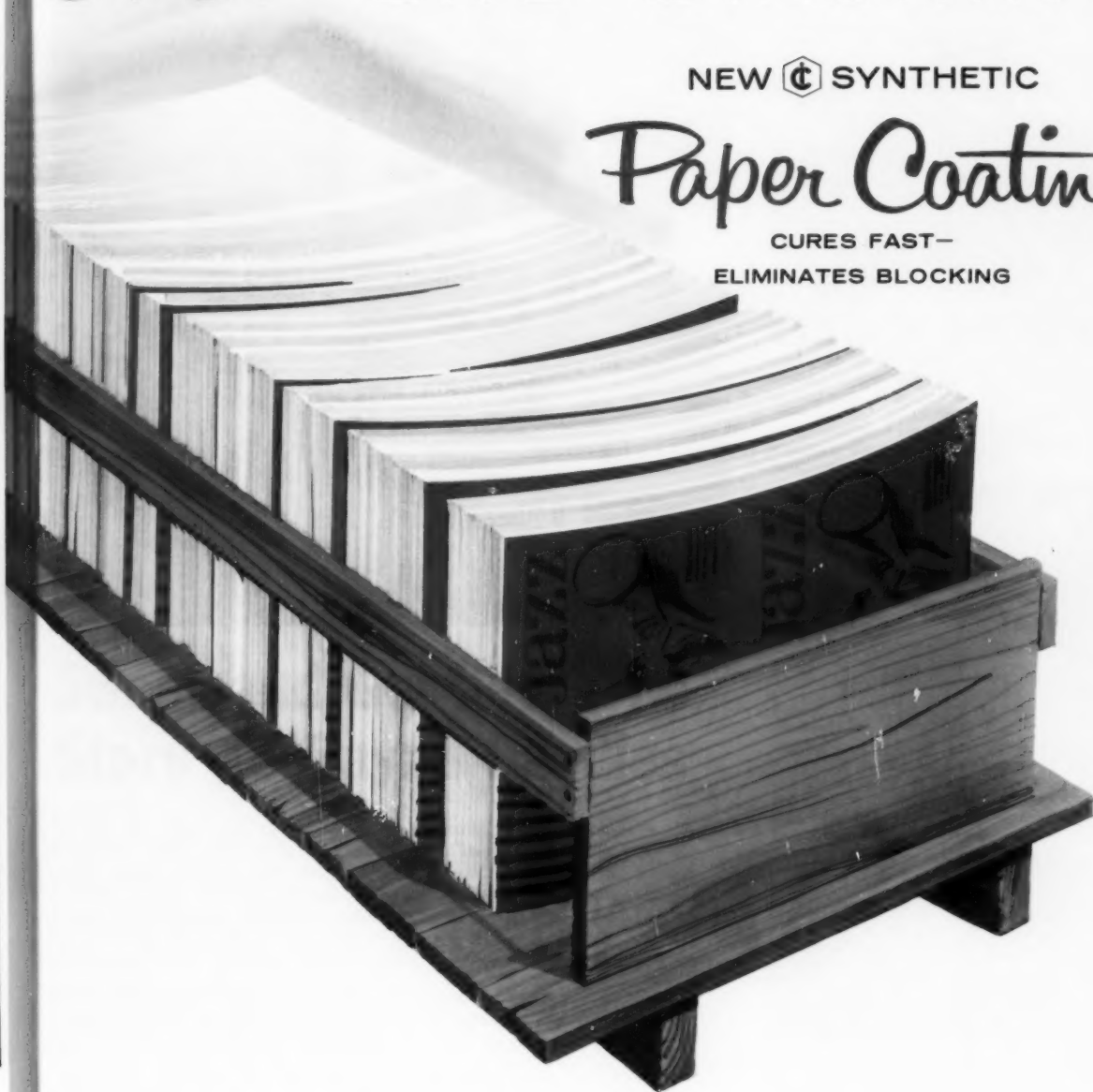
EKCO is the registered trademark of Ekco Products Company, ALCOA is the registered trademark of Aluminum Company of America. The corporate name and combination mark; EKCO-ALCOA, is used under license to the manufacturer by each of these companies.

STOP END STACKING

NEW  SYNTHETIC

Paper Coating

CURES FAST—
ELIMINATES BLOCKING



IC-63 stops the end-stacking profit-killer, thanks to its positive cure, and resistance to marring and blocking.

SPARKLE TO SPARE

Unequalled in performance, IC-63 produces brilliant clarity and sharp, high gloss—approaching laminated clear films on cast-coated stocks. Packaging takes on a bright new look . . . commands *special* consumer attention.

IC-63 assures hard, scuff-resistant surfaces and extraordinary color retention. "Burning out" of tints is practically eliminated. After catalyzing, IC-63 will remain stable for weeks without danger of loss due to premature gellation.

All of these properties mean smooth, trouble free production . . . *no more job rejections.*

For further details, contact your IC Paper Coatings Specialist or send for new IC Paper Coatings Bulletin.

Tear Out This Page and See For Yourself.

Try to scuff or scratch it. Notice its pale, water-white initial color; how it retains its sparkling finish and crystal clarity. Make the block test up to 200°F.



Interchemical
CORPORATION
Finishes Division

Headquarters Office: 224 McWhorter St., Newark 5, N.J. • Factories: Chicago, Ill. • Cincinnati, Ohio • Elizabeth, N.J. • Los Angeles, Cal. • Newark, N.J. • Mexico City, Mex. • In Canada, this product is made by Aulcraft Paints Limited, Toronto, Ontario, and sold under its trademark. *IC is a trademark of Interchemical Corporation



Sweet and Gentle... The Story at Wayne Candies

Wayne Candies, Inc. Fort Wayne, Indiana, recently installed a Wey-Mor automatic weighing and bag-filling machine to provide gentle treatment to a wide variety of candies. The equipment is used to handle items Wayne manufactures as well as those it re-packages under its own label. Some of the items handled on the Wey-Mor include Flavored Puffs, Cinnamon Imperials, Rum & Butter Toffee, Pineapple Slices, Rainbow Mints and a wide variety of other items.

Since installing the equipment, Wayne Candies has increased its production enough to save 10% on bagging costs and has reduced material losses by approximately 50%.

Extremely smooth, fast delivery is particularly important to assure perfect package appearance of a fragile candy like Wayne's Flavored Puffs. Wey-Mor meets all requirements because it features a vibratory feed along its entire length, not just at the bulk and dribble point. This eliminates friction and breakage of the candy.

Wey-Mor will be a "sweet" addition to your packaging operation! See how it can improve your product's appearance and cut your production costs. Write for full information.



Write for Illustrated Wey-Mor Folder
that demonstrates true flexibility in production-line weighing.



Close-up shows detail of Lynch Wey-Mor. Vibratory feeder brings product forward to the bulk (2 outside channels) and dribble (center channel) point. Machine is quickly adjusted for any amount from 8 to 16 ounces . . . automatically discharges when proper weight is reached.

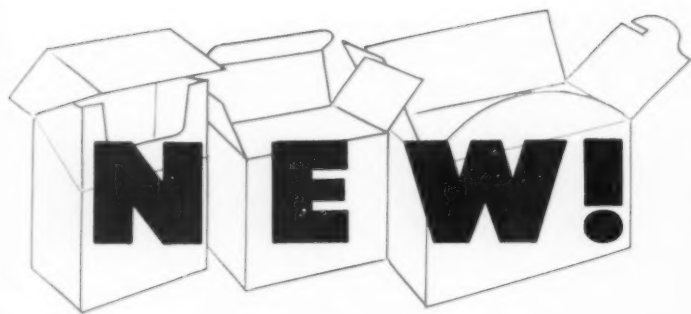


Wayne's packaging team includes a Lynch Robo-Lift which is synchronized with the Wey-Mor scale to assure a steady flow of candy. One girl keeps hopper filled, one handles filled bags, one labels them and another cases the finished product.



These are among the items Wayne Candies, Inc. packages with their Wey-Mor Automatic Weighing Machine: Flavored Puffs, Cinnamon Imperials, Rum & Butter Toffee, Pineapple Slices and Rainbow Mints are among the hundreds of varied items bagged on this high speed machine.





Two new folding carton boards...
made to Riegel's high quality
standards...and competitively priced.

Riegel's

FOLDBRITETM

FULL-BLEACHED SULPHATE BOARD

Riegel's

FOLDCOTETM

FULL-BLEACHED SULPHATE BOARD,
ON-MACHINE COATED ONE SIDE

- ★ OUTSTANDING BRIGHTNESS AND CLEANLINESS
- ★ SMOOTH, EVEN SURFACE FOR HIGH-SPEED QUALITY PRINTING
- ★ EXCELLENT FOLDING AND SCORING STRENGTH
- ★ AVAILABLE IN .007 TO .026 CALIPER

"Carolina Belle"...Riegel's giant new bleached paper and board machine at Acme, N. C., is now in production. We believe that its new Foldbrite and Foldcote grades are outstanding in their field, and

deserve your serious consideration. A wide range of other bleached board specialties can be tailor-made to your requirements. Write or phone for samples, prices and full information.



Riegel PAPER CORPORATION

260 Madison Ave., New York 16, N.Y.

ATLANTA • BOSTON • CHICAGO • EDINBURG, IND. • SAN FRANCISCO

A PRACTICAL PACKAGE THAT SPARKLES WITH SALES APPEAL. EACH BULB HAS ITS OWN TAMPERPROOF HOUSING OF ACETATE, ANCHORED IN A TEAR-OFF CARD INDICATING FLASHLIGHT TYPE AND SIZE.



G. E. uses Celanese Acetate for high-speed blister packaging



Five "blisters" per second . . . 300 packs per minute—that's the speed at which a newly developed machine readies General Electric flashlight bulbs for competitive selling.

G. E. reports that the sheet plastic chosen—Celanese Acetate—meets all requirements of this mass-production thermoforming operation.

If you're now using or considering "blister" packs, Celanese can meet your requirements, too, with gleaming, transparent Acetate of proper strength, conformability, rigidity and toughness. You will find, as other users have, that its fine quality is an economy all the way from production line to ultimate buyer. For full details, write to Celanese Corporation of America, Plastics Division, Dept. 108-S, 744 Broad Street, Newark 2, N. J.

Canadian Affiliate: Canadian Chemical Co., Limited, Montreal, Toronto, Vancouver. Celanese®
Export Sales: Amcel Co., Inc. and Pan Amcel Co., Inc., 180 Madison Ave., New York 16.

Celanese plastics

SWIFT'S HIGHSPEED RESIN ADHESIVES

pick-up and lap-end
labeling adhesives






bag closure
and manufacturing

multiple unit
packaging

folding carton and
top and bottom sealers
tite-wrap adhesives

carton sealing

Developed to give you more
of everything you need to meet
today's production requirements

-  Good moisture and heat resistance—helps your package withstand the rigors of varying temperature and humidity conditions.
-  High speed formulations—permit higher operating speeds to reduce unit costs.
-  Cleaner machining—requires less adhesive, reduces rejects and makes clean-up easier.
-  Good appearance—makes a better looking package . . . translucent glue line is neat and clean.
-  Versatile—for use on a wide variety of packaging materials, under a wider range of temperature and humidity conditions.

A trial on your own equipment under your own operating conditions is the best proof of performance. Ask your near-by Swift adhesive specialist for details, or write SWIFT & COMPANY, Adhesive Products Department, Chicago 9, Illinois.

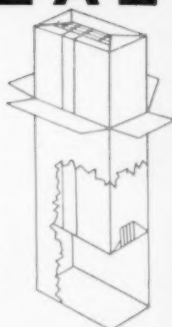
Swift
103 YEARS

*To Serve
Your Industry Better*

A-46

PNEUMATIC'S NEW FIN-SEAL PACKAGE

- Provides protection of heat-sealed envelope plus rigidity of carton.
- May be filled by weighing or volumetric methods — to any height up to 98% of capacity.
- Inner bag made with face-to-face fusing of currently used thermoplastic coated materials.
- Entire package produced on Pneumatic Double Package Maker combinations.



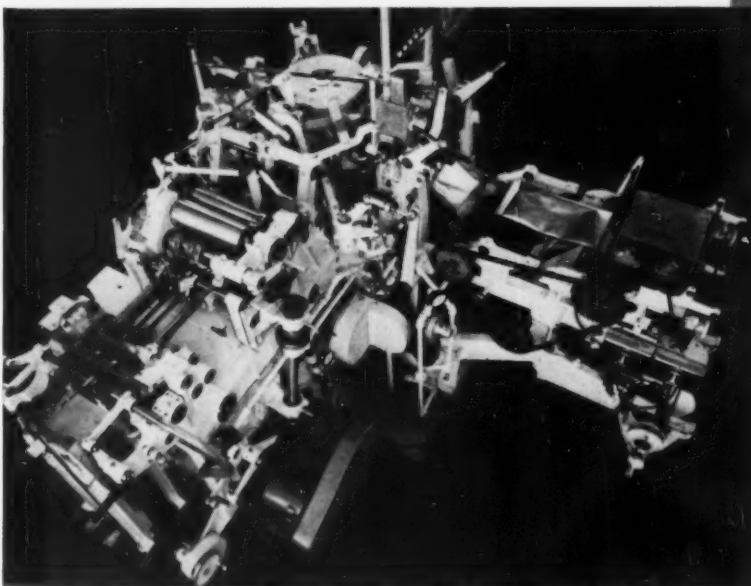
A container which has proved itself highly effective under most demanding conditions, the Fin-Seal package offers moisture protection within full tested range of lining materials.

The symmetrically made inner bag is formed with heat-sealed "fins", centrally located on one side, the bottom, and the top. Top and bottom fins are crimped under pressure with our unique plunger-action device for hermetically sealing folded side seam ends. Vertical or body seal on inner bag is in dead center to allow for mechanical spreading of lining top, during closure operations, without interfering with vertical seal.

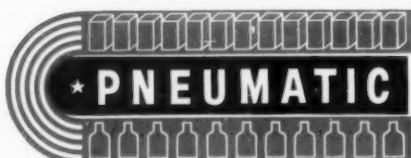
This package consisting of a heat sealed protective packet "glove-tight" within a carton provides a means of shelf display and space for printed messages including brand name, recipes, etc. It is ideal for such products as gelatine and pudding desserts, dehydrated soups, dry cereals, pie crust mix, cake mixes and brown or confectionery sugar.

Pneumatic's Fin-Seal Package Maker machine handles all currently available heat seal coated lining materials. If desired, however, the unit may be furnished to run uncoated stocks. With this method a glue pattern is stenciled for side seam, top and bottom "fins" of the inner bag. Operations beyond this point are the same as when thermoplastic coated stock is used.

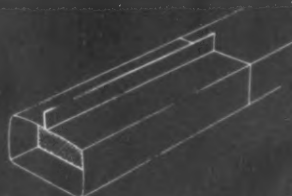
PNEUMATIC SCALE CORP., LTD., 82 Newport Ave., Quincy 71, Mass. Also New York; Chicago; Dallas; Seattle; San Francisco; Los Angeles; London, England. Canadian Division: Delamere & Williams Company, Ltd., Toronto.



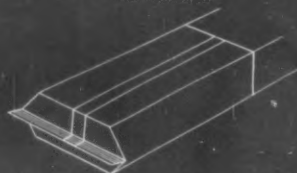
THE NEW FIN-SEAL PACKAGE MAKER



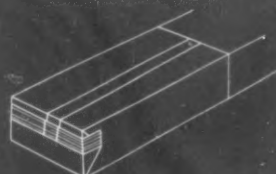
Packaging and Bottling Equipment



Heat



sealed



**protection
plus**



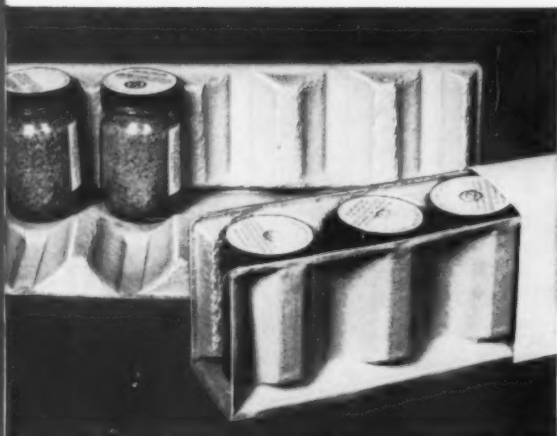
Write for Bulletin No. 137 giving full details on the new Fin-Seal package.



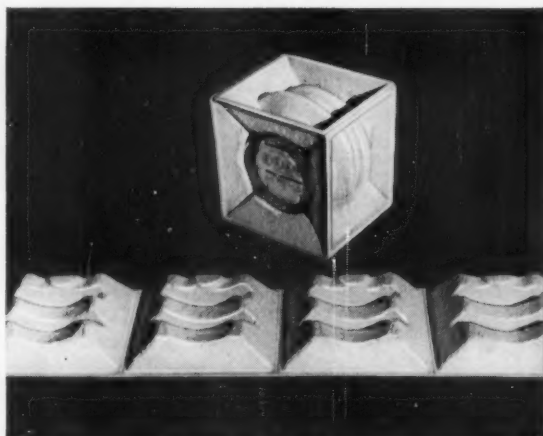
For Fruits



For Plants



For Glass Jars



For Electrical Parts

Keyes molded pulp

Contour

packaging

- ★ Custom fitted protection
- ★ Less bulk
- ★ Lower cost

Modern contour packaging with molded pulp is being increasingly recognized as the most effective method of protecting a wide variety of items. The most delicate merchandise can be shipped with greater safety when shielded by these form-fitting pulp shapes. In addition to savings from reduced breakage, nested contour packaging material is well suited to modern automation, saves valuable storage and shipping space and is usually less costly.

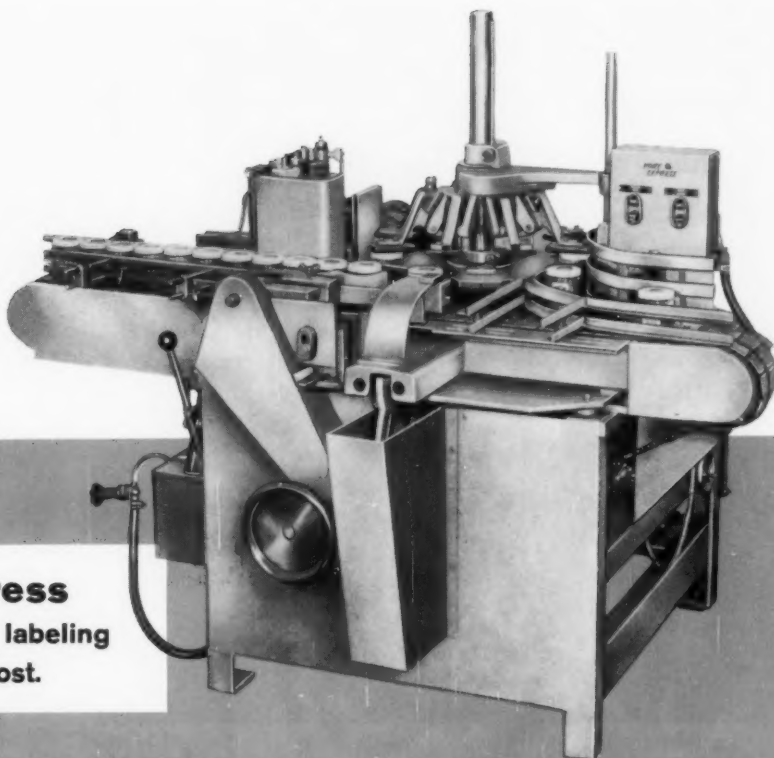
Years of experience in the field of molded pulp coupled with modern plants and manufacturing skills, are available at Keyes to design and produce a more efficient, more economical packing for your products. Our Product Development Division will be glad to supply further information and cooperate with you in developing contour packaging for your products.

Product Development Division, Dept. 42

KEYES FIBRE COMPANY

WATERVILLE, MAINE





Pony Express
delivers precision labeling
at low unit cost.

Fully automatic SUCTION labeler handles any shape label and container

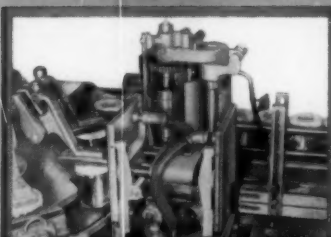
Your first and immediate saving with the Pony Express is that you eliminate the operator. Compared with semi-automatic labeling, you increase production as much as 50 per cent and *at one and the same time* you both reduce cost and improve package appearance.

The exclusive suction-principle operation of the Pony Express removes labels from hopper without assistance from the glue. Glue is used only for adhering labels to containers. Label registration is accurate to within 1/64" regardless of container's shape.

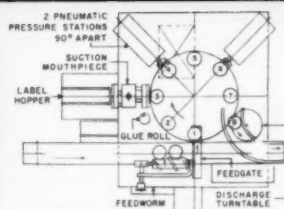
The Pony Express has a micro-controlled glue system that coats each label with a fine, even film of adhesive. This over-all gluing means containers are labeled with edges down tight. Glue seepage, loose-corners, hand retouching are eliminated entirely.

The Pony Express can be used for short runs as well as for volume production. Change-over from one job to the next takes only 25 minutes for both label and container. On large runs, the non-stop label loading feature permits longer, uninterrupted production.

Prices start at less than \$6000. Write for new bulletin.



Suction Guarantees Perfect Label Placement. Label is controlled by the positive holding force of suction until the moment it is adhered to the container. It cannot shift in transit. Perfect registration is absolutely automatic.



NEW JERSEY MACHINE CORPORATION

GENERAL OFFICES AND PLANT: 1500 Willow Avenue, Hoboken, New Jersey

FACTORY SALES AND SERVICE BRANCHES: Chicago, Cincinnati, Los Angeles

EUROPEAN MANUFACTURING AND SALES HQRS.: Packaging Machinery (Peters) Ltd., Slough, England

A dependable packaging machine source for 40 years.



Even pouring rain can't harm these heavy-duty polyethylene shipping bags, pioneered by Spencer Chemical Co. Here hygroscopic ammonium nitrate is being

stacked in open field during recent rainy season. Also, two years of tests show 25 to 50% less bag breakage with polyethylene compared to kraft paper.

Read why Spencer Chemical Company has decided to use

Heavy Duty Polyethylene Bags To Ship Thousands of Tons of Fertilizer:

Two years of tests show bags give complete moisture protection, cut bag breakage to 0.77% or less . . .

Many large-scale industrial shippers will be interested in Spencer Chemical Company's decision to trust their own products to a new heavy duty polyethylene shipping bag. For this decision is the best possible proof of Spencer's own faith in that bag, pioneered by Spencer over a two-year period.

This fall Spencer will start shipping thousands of tons of "Mr. N" Ammonium Nitrate in 10-mil polyethylene bags. It was an important decision, made only after a series of grueling tests.

In over 2½ million lbs. of shipments of "Mr. N," only 0.77% of 51,240 bags were broken. In a test involving shipments of polyethylene resin, breakage was only 0.72% — less than half of kraft paper's 1.5%.

Material loss is slight, even when bags are broken. For instance, one dealer reported the loss from eight broken bags in a car of fertilizer was less than one quart. Further,

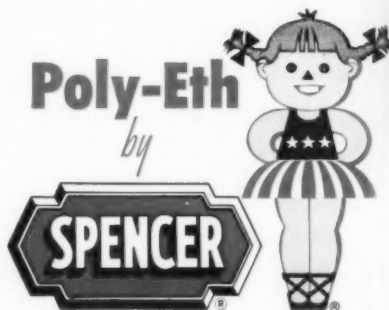
broken bags can be easily repaired with pressure-sensitive tape.

Completely moisture-proof, these bags can be stacked in an open field, even in pouring rain. This feature is of major importance, not only to "Mr. N," but to nearly all hygroscopic products. It means, too, that feeds and food products can be stored for months with practically no moisture loss.

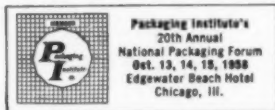
These bags are easy to heat-seal. Fifty pound bags of ammonium nitrate can be filled and sealed at the rate of 16-20 bags per minute per machine — a speed comparable to rate for 50 pound paper bags. All bags are corrosion-proof, non-toxic, and contamination-proof.

If you're an extruder, find out more about Spencer "Poly-Eth" Poly-

ethylene, the super-tough resin used in pioneering these new bags. If you're a packager, ask where you can get these extra-protective bags for your own product. See a Spencer salesman or write to Market Development Section, Spencer Chemical Co., Dwight Bldg., Kansas City 5, Mo.



SPENCER CHEMICAL COMPANY
Dwight Building . . . Kansas City 5, Missouri





THE ROAD TO SELL

is paved with good Impressions!



COLORFUL APPETITE APPEAL BY

Nothing—but nothing—stops a busy shopper and puts her in the buy-mood as quickly as brilliant, mouth-watering appetite appeal by Milprint! Here's the like reproduction as only Milprint does it . . . for Milprint controls every step of your carton job from design and artwork through platemaking and press run. The result is clean, crisp, quality lithography unmatched for fidelity and shopper appeal—printing that tells and sells for you. Call your Milprint man—first!

Milprint ^{*} INC.
PACKAGING MATERIALS

General Offices, Milwaukee, Wisconsin
Sales Offices in Principal Cities

Printed Rolls, Foil, Cellophane, Glassine, Polyethylene, Saran, Acetate, "Mylar"®, Pliofilm, Vitafilm, Laminations, Extrusions, Lithographed Folding Cartons, Bags, Lithographed Displays.



Acetate Sheeting...

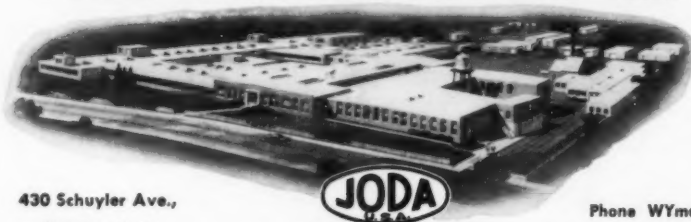
the perfect plastic for skin or blister packaging. JODA extruded acetate sheets, rolls and film in light to heavy gauges—transparent, translucent or opaque—excellent for vacuum forming.

BUTYRATE and LINEAR POLYETHYLENE available in standard sizes.

For information and samples, contact

JOSEPH DAVIS PLASTICS CO.

The illustration shows a blister package made of JODA crystal clear acetate by Rel Manufacturing Corporation.



430 Schuyler Ave.,
Kearny, N. J.



Cable — Insel

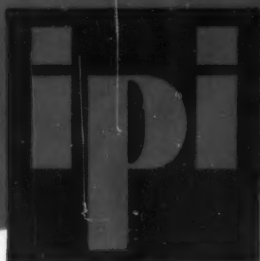
Phone WYman 1-0980-0981
N. Y. Barclay 7-6421-6422

Sales Representatives Conveniently Located

1
2

COTY FRANKS INC.





ANNOUNCES

MULTI-PURPOSE FLEXOTUF

**The Revolutionary Flexo Inks
for Assorted Packaging Films**

For new high gloss at
new high press speeds on:

•
**MYLAR
TREATED POLYETHYLENE**

•
**SARAN
COATED CELLOPHANES**

•
**TREATED
ALUMINUM FOIL**

•
**MOST GRADES OF
MOISTURE PROOF
CELLOPHANES**

•
ACETATE

•
POLYSTYRENE
•

**New higher press speeds • Extra high gloss
Excellent printability • High block resistance
Superior moisture resistance • Resists foaming**

Over 2 full years of commercial testing have gone into the proving of remarkably versatile Flexotuf. These new inks combine features never before present in the ordinary run of Flexo inks. They offer almost unbelievable block and moisture resistance, as well as exceptional gloss; rich colors never before possible give a new dimension to "eye appeal." Many of our customers report that with these new inks they turned out the finest jobs ever produced in their plants. What's more, Flexotuf replaces the several inks previously needed for this type of package printing, hence, tie up less money in inventories. See for yourself why Flexotuf is revolutionary! Call IPI now!

IPI, IC and Flexotuf are trademarks of Interchemical Corporation



**INTERCHEMICAL • PRINTING INK
CORPORATION DIVISION**

EXECUTIVE OFFICES: 67 W. 44th ST., NEW YORK 36, N. Y.

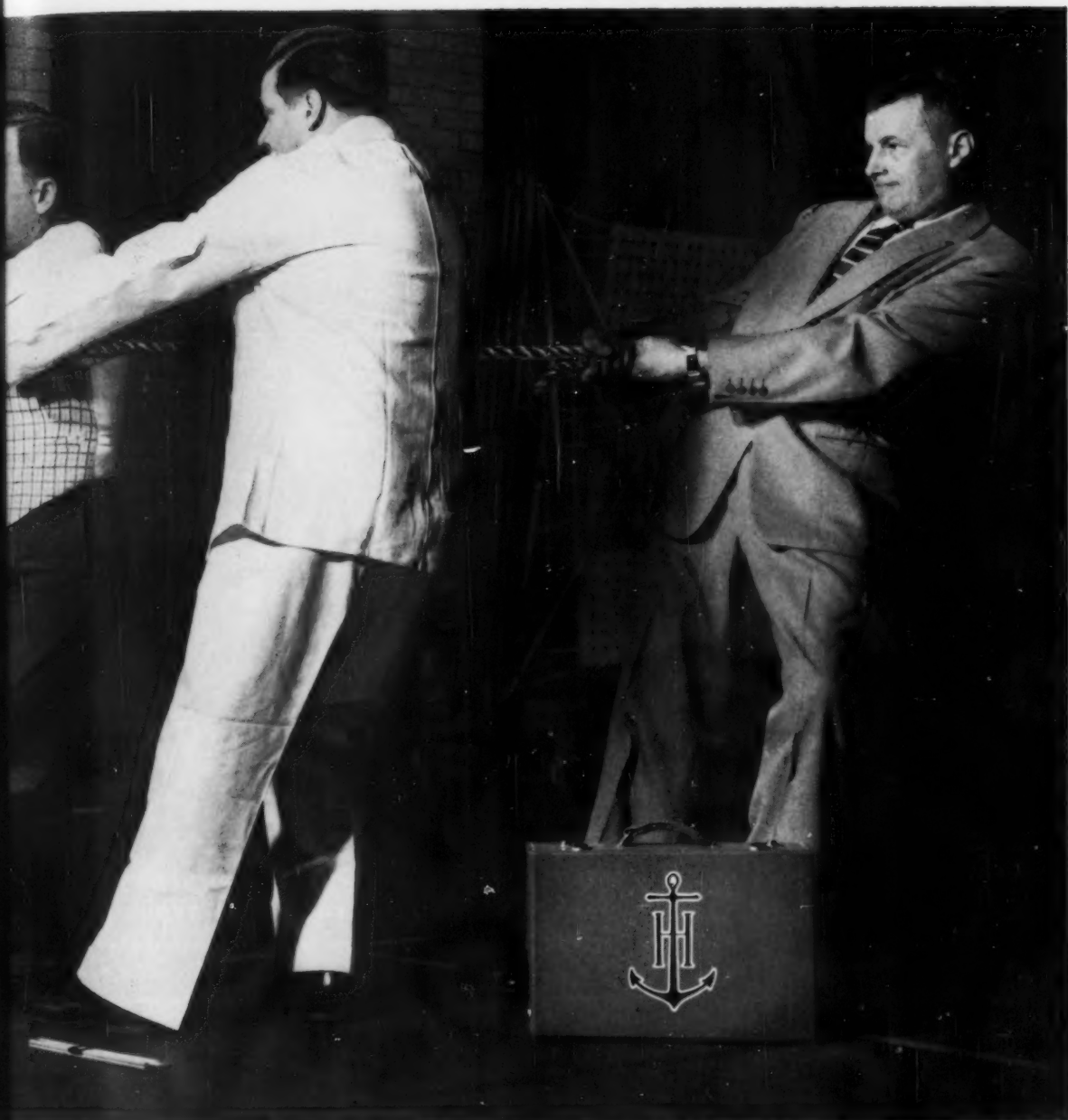




A PACKAGING TEAM NEEDS AN

The package can determine the success of a product. And so important has the packaging factor become that more and more companies are making packaging decisions through *teamwork*. Specialists from various departments offer their know-how and experience. But to make a packaging team complete, it needs an outside viewpoint.

It needs an Anchor Man. The Anchor Man is a glass packaging expert who has helped solve hundreds of packaging problems and who can help solve yours through this wide experience. And if you should need it, your Anchor Man can bring you the help of Anchor Hocking's extensive Package Engineering and Research Division.



DS AN ANCHOR MAN!

is a
solve
help
and if
bring
nsive
.
Contact your Anchor Man soon. We know you'll like his quality-controlled Anchorglass® containers, dependable Anchor® closures and sealing machines. We know you'll like his service. We know you'll want him on your team, too. Anchor Hocking Glass Corporation, Lancaster, Ohio. Branch offices in all principal cities.

ANCHOR HOCKING

Glass Containers
and Closures



Single Impression Cylinder

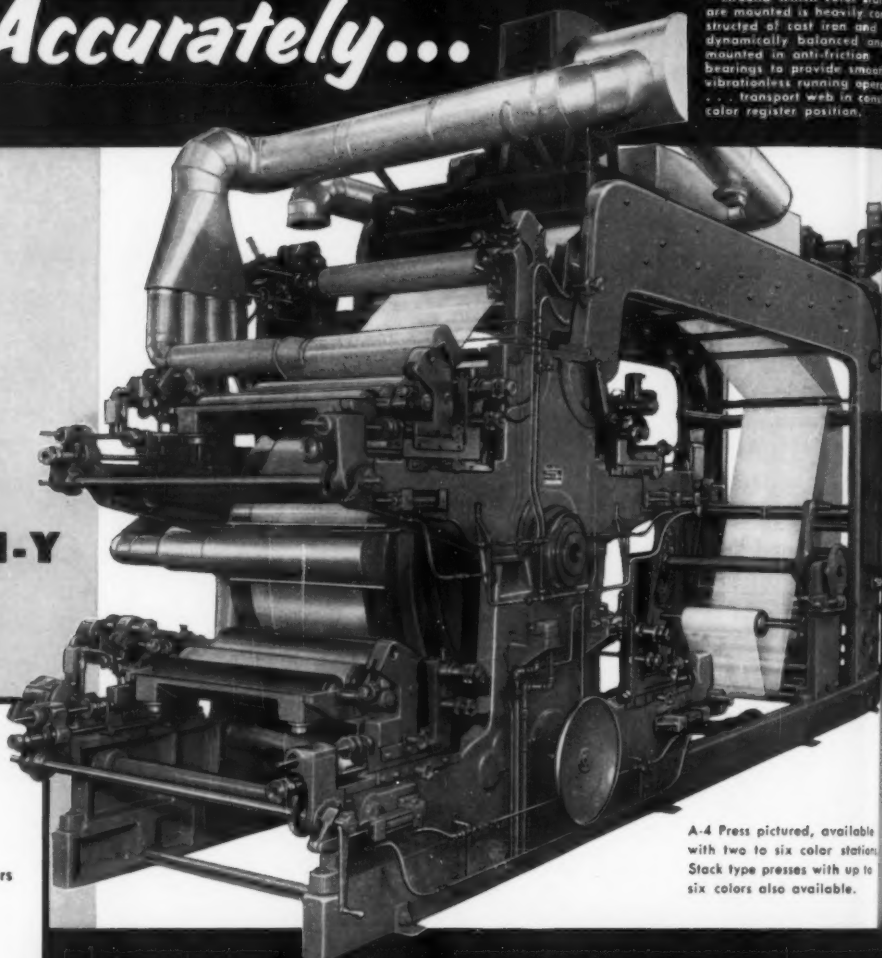
Register Accurately...

—Around which color plates are mounted is heavily constructed of cast iron and dynamically balanced and mounted in anti-friction bearings to provide smooth vibrationless running operation... transport web in exact color register position.

Highly detailed screen or line **COLOR PRINTING ON S-T-R-E-T-C-H-Y FILMS**

Check carefully these important advantages:

- High speed printing up to 1000 ft. per minute
- Standard presses with two to six colors
- Prints 20" to 50" widths, repeats 12" to 36"
- Continuously agitated splash-proof ink fountains
- Hydraulic color throw-outs
- Prints 1 mil. film to heavy weight papers
- Anilox type transfer rolls
- Automatic tension web controls for accurate print register and repeats
- Constant print repeats increase operating efficiency of automatic bag and packaging machines
- Handles unevenly wound rolls or webs of varying caliper
- High speed surface driers of advanced design between colors and before rewinding
- Flying splice unwind and rewind for continuous operation, optional
- Vibrationless, heavy duty cast iron construction
- Anti-friction bearings thru-out
- Easiest of all presses to operate—holds register at all speeds
- Reduces down-time and material waste to the minimum



A-4 Press pictured, available with two to six color stations. Stack type presses with up to six colors also available.

Constant register FLEXO-PRESS prints two to six colors with hairline accuracy on all types of packaging films, foils, papers and heavy-duty wraps

High speed color printing of the finest quality on Polyethylene, Pliofilm, Mylar, Saran and other materials is greatly simplified with this modern press.

Holding color impressions in accurate register and print repeats over long runs is no problem. Once set, this press holds register at all speeds without readjustment. Web locks-in position on a single impression cylinder and is transported from color to color without stretch or expansion. Measured tension controls on both infeed and outfeed regulate stretch and keep repeats

in constant register — even though roll may be unevenly wound or web of varying caliper. Prints materials of variable thickness from 1 mil. films to heavy weight papers.

Heavy duty, cast iron construction assures years of trouble-free service and smooth, vibrationless running operation even with the hardest of usage. Users acclaim our A-4 press as the easiest to operate—the most economical in downtime and material waste. Write us—we'd like to discuss its many advantages with you.

**CONVERTING
AND PRINTING
EQUIPMENT**

Other Hudson Sharp machines include Roto and oil ink presses, Automatic Roll Winders, Waxers, Embossers, Laminators, Folders, Core Winders, Creppers and Campbell Wrappers.

HUDSON-SHARP MACHINE CO.
GREEN BAY, WISCONSIN



SUBSIDIARY OF FOOD MACHINERY AND CHEMICAL CORPORATION

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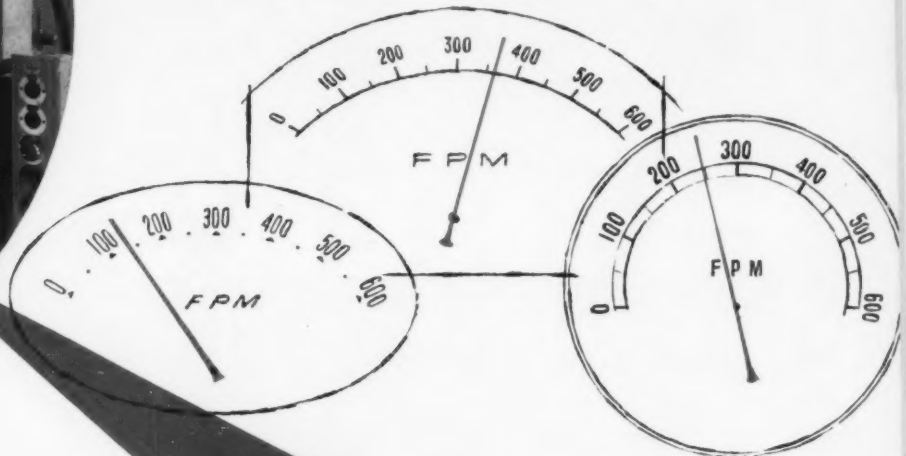
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How fast do you print?



Now...get optimum color strength and gloss plus the press performance of a low viscosity ink...at all speeds!

BBD Speed-E-Brite

High-Gloss Flexographic Ink

***COMPATIBLE**
with **NATURAL** or
BUNA "N" RUBBER

You can use **SPEED-E-BRITE** with either natural or synthetic (Buna "N") rubber plates and rollers at printing speeds to 350 fpm. No need to switch inks for different rubbers nor to re-make plates for re-runs. At printing speeds over 350 fpm the proper solvent mixture requires use of Buna "N" plates and rollers only.

With BBD **SPEED-E-BRITE** in the fountain, you get top performance at any press speed, without loss of color strength or working properties. That's because **SPEED-E-BRITE** is based on an entirely new solvent system unlike that of other flexographic inks. It combines a rich depth of color and unbeatable gloss with uniformly low viscosity in all colors, controlled within narrow limits to assure good results on the press.

SPEED-E-BRITE gives you more print per pound too . . . covers up to 30% more area than other inks. Other advantages of this new low-viscosity ink are its excellent water and block-resistance. And it is less sensitive to temperature changes too. You can use **SPEED-E-BRITE** on *polyethylene* (treated) . . . "Mylar" and other polyester films . . . *cellophanes*—plain, semi-moistureproof, polymer-coated . . . *aluminum foil* (washed) . . . and "Saran", *polystyrene* and *acetate* (depending on end use). For consistently beautiful results on all these stocks . . . order a supply of **SPEED-E-BRITE** today!

See what **SPEED-E-BRITE** will do. Get sample prints and **FREE** Technical Data Sheet from your nearest BBD office or write Bensing Bros. and Deeney, 3301 Hunting Park Ave., Philadelphia 29, Pa.

Bensing Bros. and Deeney Flexographic Ink Specialists

A subsidiary of Sun Chemical Corporation

PHILADELPHIA • CHICAGO • SAN LEANDRO, CAL. • CAMBRIDGE, MASS. • MONROE, LA. • TORONTO



Sun Chemical's Graphic Arts Group: GENERAL PRINTING INK Gravure, Letterpress, Offset Inks and Supplies GEO H. MORRILL Newspaper Inks
BENSING BROS. AND DEENEY Flexographic Inks RUTHERFORD MACHINERY Lithographic Equipment

CUSTOM MADE

FISHER'S

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FOILS

FOR PERFECT PACKAGING



FISHER'S FOILS LIMITED, EXHIBITION GROUNDS, WEMBLEY, MIDDLESEX, ENGLAND
Tel: Wembley 6011

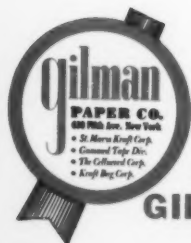
Cables and Grams: Llofnit, Wembley (A.B.C. Code 6th Edition)



THIS SEAL

identifies a new quality brand of Bleached Sulphate Board

produced in a most modern, fully integrated plant, located at St. Marys, Ga. Bleached virgin pulp produces board of the highest brightness, maximum purity, utmost strength.

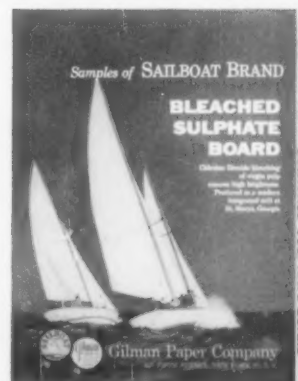


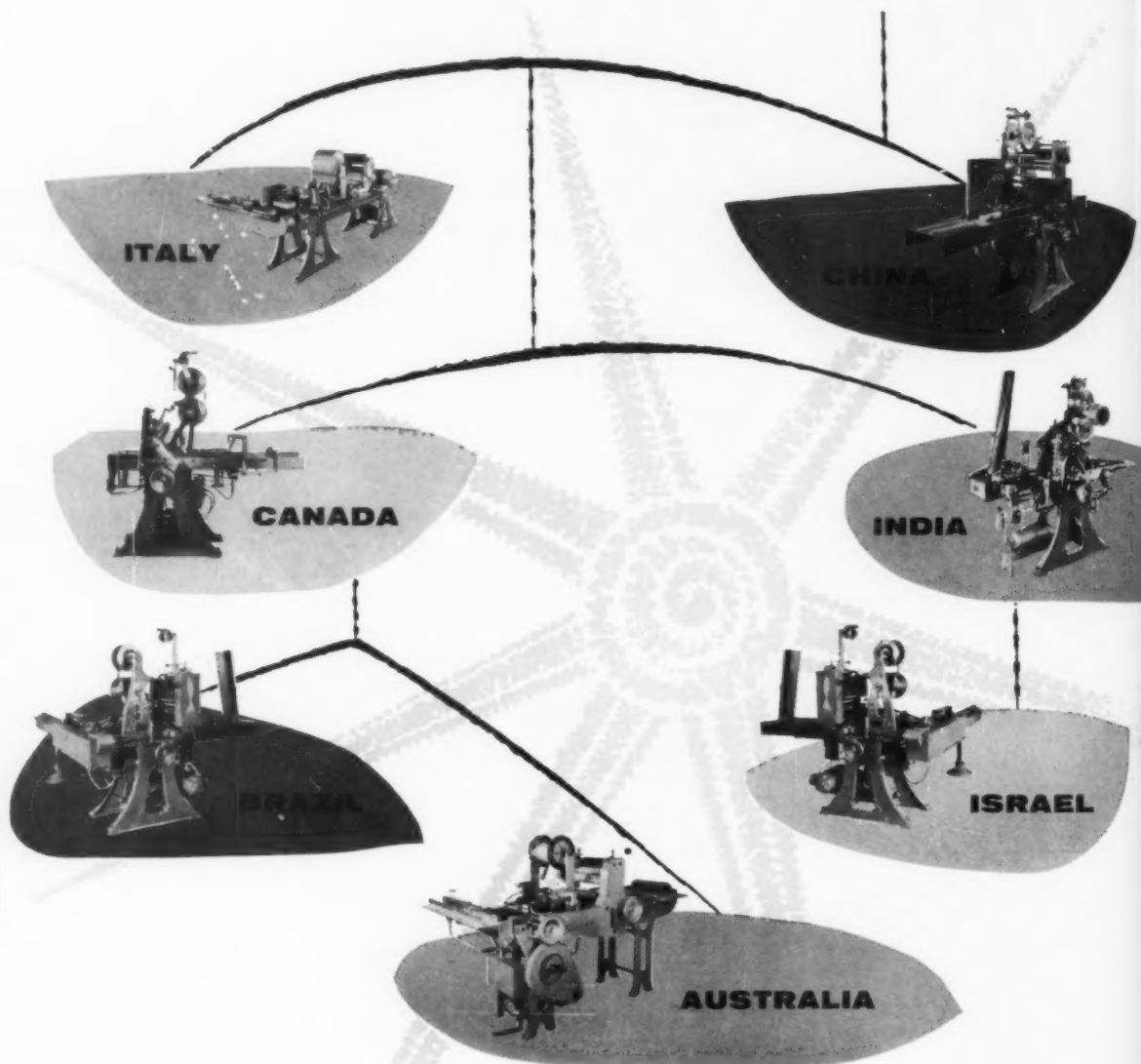
3 GENERATIONS OF PAPER MAKING

GILMAN PAPER COMPANY, 630 FIFTH AVE., NEW YORK 20

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*We'll gladly
send you samples
in this
file-size folder
if you will
send us
specifications.
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The Sun Never Sets on a Scandia Machine

Wherever there's a need for ingeniously engineered,
precision machinery to do a tailored job of economical
packaging—that's where you'll find a Scandia machine.

So it's no wonder Scandia has customers in 50 countries . . .
from Argentina to Australia, from Italy to India.

CHARTING NEW PATHWAYS IN PACKAGING



Makers of Standard and Custom Machines for Bundling • Banding • Multiple Wrapping • Stamping • High-Speed Wrapping



CONTROL! Packaging often controls a product's success—and leaders in almost every industry know it. That's why most of them have their paperboard containers supplied by the West's leading producer, Fibreboard. One look at Fibreboard packages will tell you why. Your nearest Fibreboard representative's office is listed on the back of this page.

FIBREBOARD. 
PAPER PRODUCTS CORPORATION

FIBREBOARD packaging for beverages

Your bottled and canned beverages travel better,
economically, in Fibreboard containers. Carriers.
Folding cartons of every size and style. Corrugated
shipping cases. Solid fibre returnable cases.

Advantages? You get many when you're served
by the West's largest manufacturer of paperboard
packaging. Your cartons and cases are faultlessly printed
on the newest modern presses. You receive market
and package research . . . structural and graphic
design . . . equipment development and counsel . . .
dependable supply and service. And people . . .
experienced people near you to work with you.

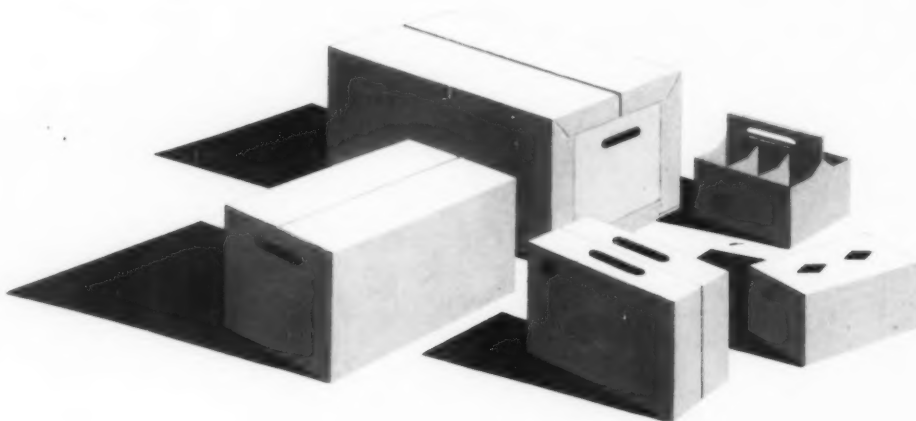
SERVICE OFFICES: Billings, Boise, Chicago, Denver, Fresno,
Los Angeles, New York, Oakland, Omaha, Phoenix,
Portland, Sacramento, Salt Lake City, San Diego,
San Francisco, San Jose, Seattle, Stockton, Yakima.

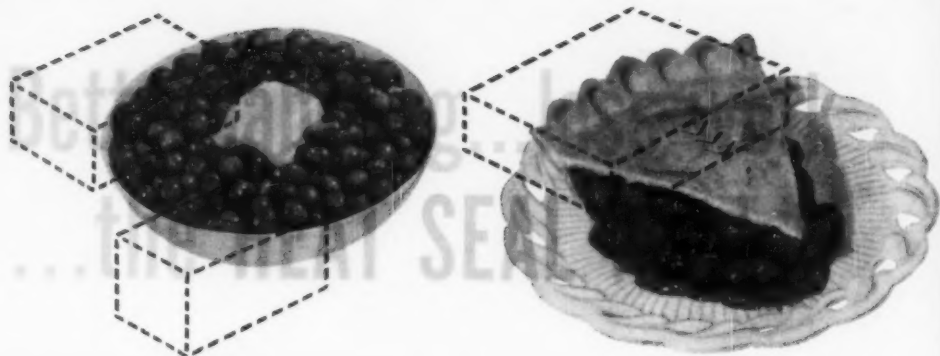


FIBREBOARD

Paper Products Corporation

Head Office: San Francisco





You get REAL-LIFE APPETITE APPEAL

with **KVP** overwraps!

Everyone in the food business knows that the more appetite appeal you can get into your package, the faster the product can sell.

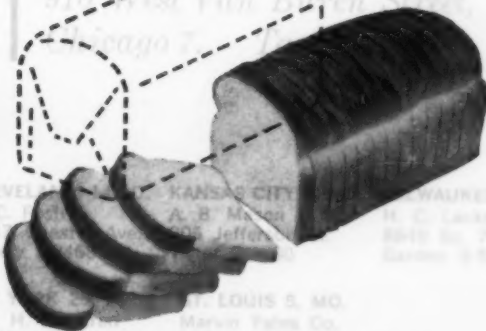
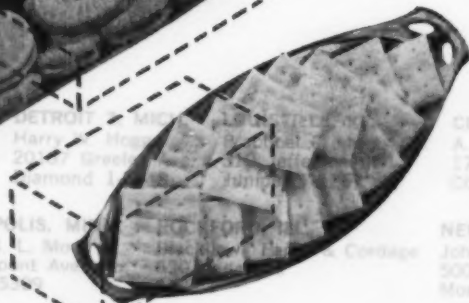
KVP overwraps were engineered to provide the perfect printing surface for gravure or letterpress. The quality of the basic KVP paper and the patented waxing process not only insure maximum printability—they provide maximum protection for food freshness.

Yet KVP overwraps are not luxury priced. Many of the nation's proudest brand names have made substantial savings when they switched to KVP heat-sealed overwraps.

If you make or distribute packaged foods—frozen or fresh—you should investigate KVP overwraps.

Send us your present package for estimates and improvements—or write us for complete information.

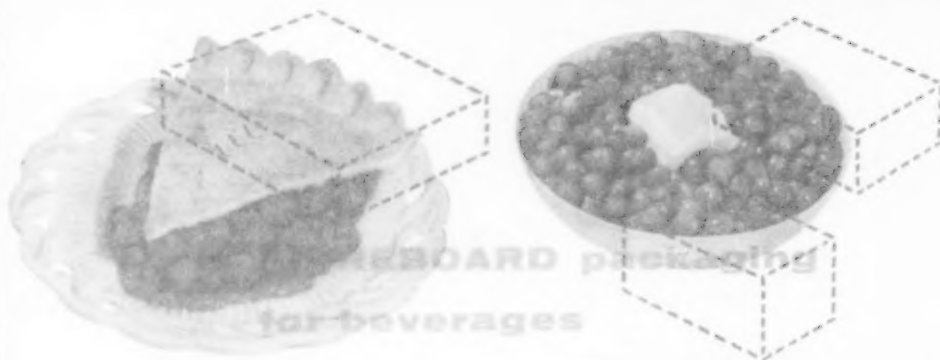
THE KVP COMPANY
KALAMAZOO, MICHIGAN



THIS AD IS PRINTED ON KALAKOTE-100

A **KVP** OVERWRAP PAPER

WE NEVER EMULSIFY • DIE-CUT OR NUMBER • FILL SEALS AND TAPES • FLAT OR CONTINUOUS FEED • THE NAME OF THE PAPER IS ALWAYS PRINTED ON THE OVERWRAP • SPECIAL ADVERTISEMENTS

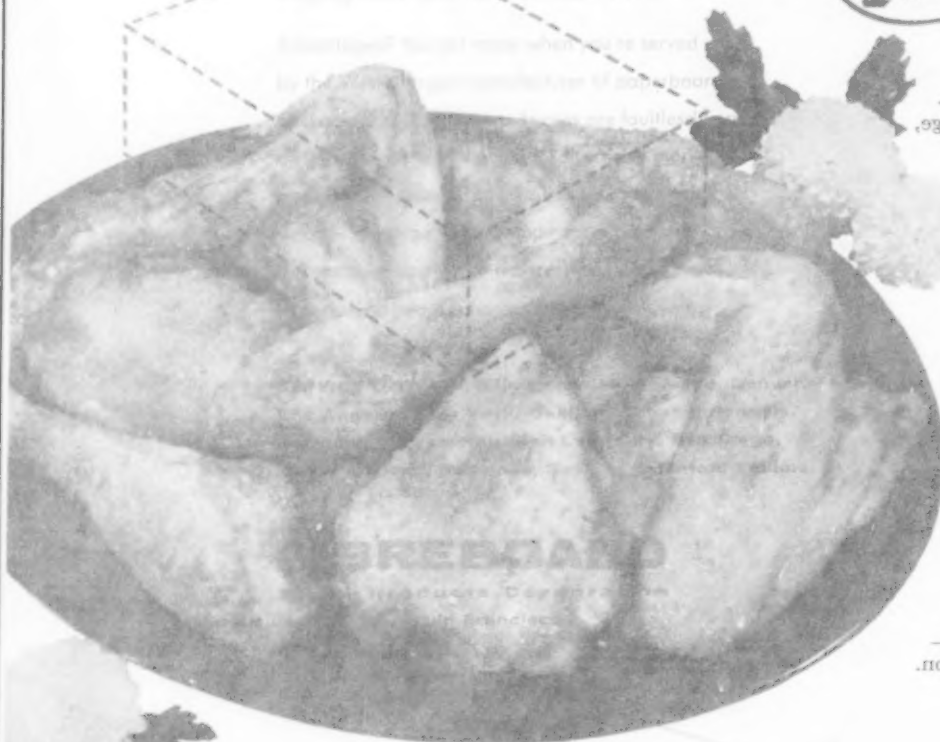


You get REAL-LIFE APPETITE APPEAL



With

overwraps!

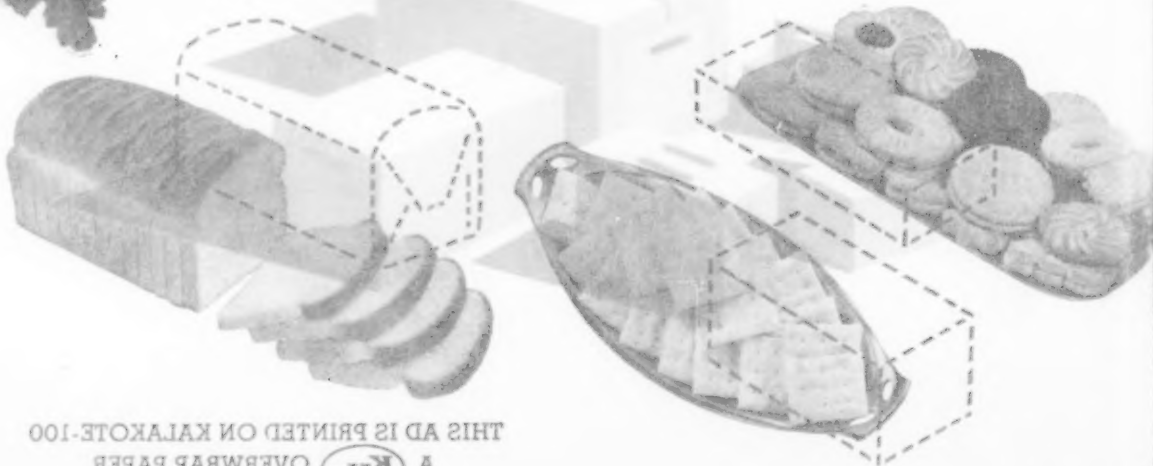


Everyone in the food business knows that the more appetite appeal you can get into your package, the faster the product can sell. KVP overwraps were engineered to provide the perfect printing surface for gravure letterpress. The quality of the basic KVP paper and the patented waxing process not only insure maximum printability—they provide maximum protection for food freshness. Yet KVP overwraps are not many priced. Many of the nation's preeminent brand names have made substantial savings when they switched to KVP heat-sealed overwraps. If you make or distribute packaged foods—frozen or fresh—you should investigate KVP overwraps. Send us your present package estimates and improvements—we will write us for complete information.

THE KVP COMPANY
KALAMAZOO, MICHIGAN

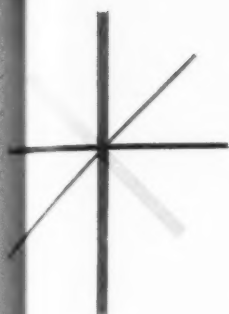
THIS AD IS PRINTED ON KALAKOTE-100

A KVP OVERWRAP PAPER



MANUFACTURED BY
KALAMAZOO, MICHIGAN
KVP COMPANY

FOR SILVER



Better labeling...less work
...the **HEAT SEAL** way!

Labels by Steigerwald

*Fine labels of all kinds
at reasonable cost*

Heat Seal requires no glue, no water, no clean-up. Ideal for bag headers and containers of practically all shapes and materials. Instantaneous or delayed action. Made to exact specifications, for use with high speed equipment. Continuous rolls or individual.

Send your present labels for redesign, without charge or obligation, or for estimate on printing in present form.
A. M. Steigerwald Company,
910 West Van Buren Street,
Chicago 7. Taylor 9-5400.

CINCINNATI 27, O.
Steiger & Son, Inc.
Montgomery Center Bldg.
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Practical Products Co.
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Juniper 7-1257

CLEVELAND 14, O.
A. C. Foster
1747 Chester Ave.
Cherry 1-2468

KANSAS CITY 5, MO.
A. B. Mason
905 Jefferson St.
Victor 2-6580

MILWAUKEE, WIS.
H. C. Lackowski
8849 So. 76th St.
Garden 5-5850

MINNEAPOLIS, MINN.
J. E. & J. L. Moor
3329 Dupont Ave., So.
Taylor 4-5309

ROCKFORD, ILL.
Blackhawk Paper & Cordage
630 Cedar St.
4-5261

NEW YORK 25, N. Y.
John H. McLaren
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Monument 2-0237

ST. LOUIS 5, MO.
Marvin Yates Co.
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Parkview 6-0296



**TOP SECURITY
(NON-SECRET)**

There's no secret about the success of R.O. seals in the closure field. The fact that these efficient, trouble-free metal caps are rolled on—and thus form a made-to-measure fit on individual bottles or jars—is known to many manufacturers, and these users increase year by year.

Consider R.O. for your glass containers. They are made in a wide range of sizes and in three types—Plain for ordinary needs, Pilferproof with a tell-tale ring that reveals tampering, and SecuRO for perfect security and opening, with threaded removable ring. Your design or message can be printed in any colour scheme—write for samples and prices now.

R.O. seals

*PLAIN, PILFERPROOF
OR SECURO*

METAL CLOSURES LTD · WEST BROMWICH · STAFFS
ENGLAND

"We imprint 'em ...as we pack 'em!"



"I usually get tomorrow's production schedules by two o'clock. In less than an hour I have ready all the small cartons and labels needed for the next day — imprinted with codes, weights and dates by our Tickometer. They're waiting for the girls and filling machines first thing in the morning — save down time and lags, speed up order filling and shipping. We've been able to cut our inventories of pre-printed materials by 85%, save on printing, and never get stuck with printed packages and labels that can't be used."

— From an actual case study.

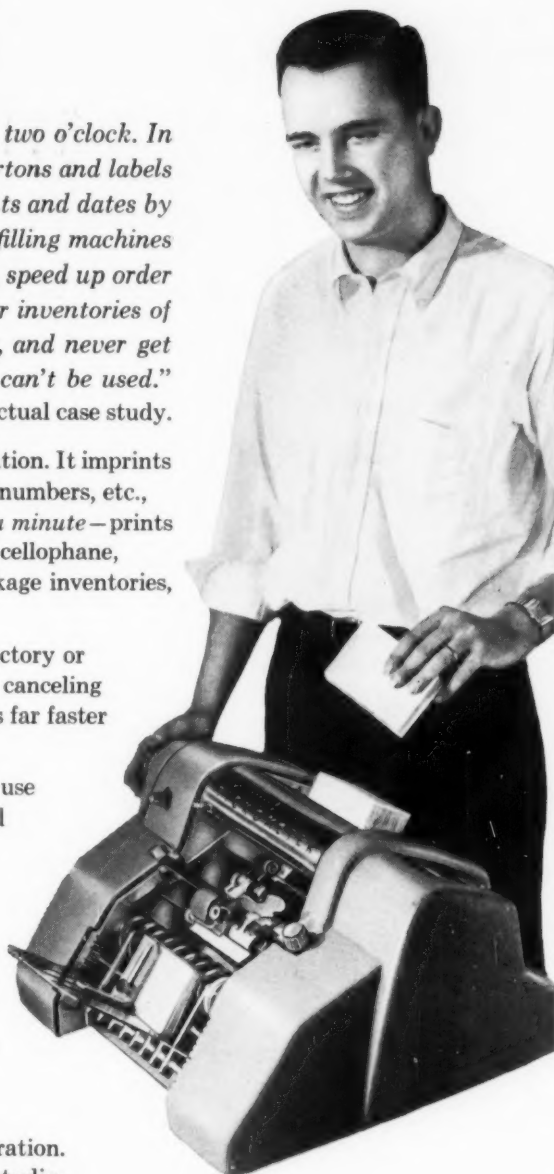
- A Tickometer is invaluable in any packaging operation. It imprints codes, weights, expiration dates, colors, sizes, serial numbers, etc., on small flat cartons or labels at speeds up to 1,000 a minute — prints on most paper weights and finishes, light card, foil, cellophane, plastics. It helps avoid production delays, cuts package inventories, reduces printing costs.

- It also saves time and work in other areas of a factory or office in marking, stamping, endorsing, dating and canceling forms, checks, coupons, tags, tickets, cards, etc. It is far faster than any manual worker.

- The Tickometer also *counts* — is so accurate banks use it to count currency! It can be set for predetermined quantities, gives partial amounts or totals, can be equipped for consecutive numbering. It supplies figures faster, makes records available earlier.

- It gives exact registration on an impression surface $2\frac{3}{16}$ by $\frac{7}{8}$ inches, handles sizes up to 15 by 15 inches, depending on the model. Feeds and stacks automatically, is easy to operate, can be used by anybody. Rented or sold, with PB service always nearby, from 302 points, coast to coast.

- Ask the nearest Pitney-Bowes office for a demonstration. Or send coupon for free illustrated booklet and case studies.



Pitney-Bowes

TICKOMETER

Imprinting & Counting Machine

Made by the originator of the postage meter...
offices in 107 cities in U. S. and Canada.

PITNEY-BOWES, Inc.
4842 Walnut Street,
Stamford, Conn.



Send free Tickometer booklet and case studies

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WHAT! A MACHINE THAT FORMS PUBLIC OPINION

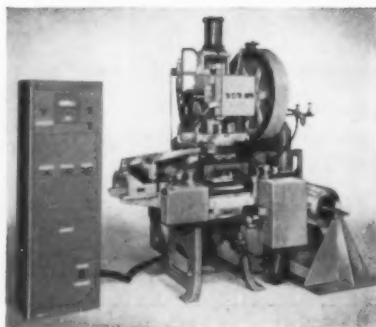
Preposterous statement! Sure it is, except if you agree to one thing: that many foods would attract more buyers if they could be packaged in a rigid transparent container at a cost only slightly higher than paperboard.

Well, if you go along with this, you'll have to take back "preposterous" with respect to Emhart's Model 1PM34 Pressure Forming Machine. This unit does remarkable things with Polyflex®, the high yield, high sparkle oriented styrene sheet that can be brought into direct—and approved—contact with food.

The 1PM34 forms—not molds, mind you—Polyflex into trays, lids, etc., of such high clarity that food takes on new and irresistible appeal. The 1PM34 is completely automatic. Sheet is fed off a roll at one end; trimmed, completely formed containers come out the other.

If you want to develop more favorable public opinion and acceptance for your product, investigate the 1PM34—it's designed for that purpose.

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EMHART

MANUFACTURING COMPANY
PLASTICS FORMING MACHINERY
STANDARD-KNAPP DIVISION
PORTLAND, CONNECTICUT

Sparkling

DIAMOND PLASTIC BOXES

COMMAND

ATTENTION



Whatever your product, whatever its packaging need, a Diamond Plastic Box will package it best — sell it faster. Products achieve sparkling display through crystal clear transparency. New packaging beauty can be obtained from our wide assortment of clear, opaque and 'tutane colors. Low cost Diamond Boxes are immediately available as stock items in more than 80 different sizes and 10 colors — by the gross or by the millions. **COMMAND** attention! Add self-sellability at point of sale with rigid, hinged Diamond Plastic Boxes.

Write for sample boxes and price list.

10,000,000 Boxes Maintained in Factory Inventory



Diamond Plastic Box

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CHickering 4-8892

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410 N. Michigan Ave.
DElaware 7-6932

LOS ANGELES, CALIF.
105 N. Virgil Ave.
DUInkirk 5-2297

BALTIMORE 16, MD.
4208 Duxall Ave.
MOHawk 4-8506

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111 S. Bemiston Ave.
PARKview 6-0296

CAMBRIDGE, MASS.
12 Norfolk St.
KIRKland 7-0670

Distributed in Canada by Plasti-Pak Containers, Ltd. Toronto

More of the good things of life come in cans

Cans made of Youngstown high-quality tin plate have brought us thousands of products to make living better and more enjoyable. Packaging manufacturers, using Youngstown tin plate, are continually developing new and improved containers that will, each year, offer us more and more of the good things of life in cans.

THE
YOUNGSTOWN
SHEET AND TUBE COMPANY

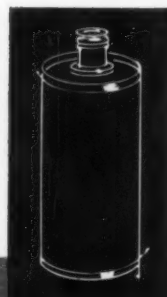


Manufacturers of Carbon, Alloy and Yaloy Steel, Youngstown, Ohio

Aerosol cans, in a wide variety of sizes, are adding pushbutton consumer convenience to dozens of products from spray paints to mothproofing.



Easy-to-fill, compact, lightweight dripless cans boost sales of heavy-duty detergents and other liquid products for the home.



Trillions
Trillions
Trillions
Trillions
Trillions
Trillions

Proved

on

Trillions

of paper

and board

packages

Hydry

**The original
moisture-set
ink by
GPI**

Millions of *folding cartons*—millions of *corrugated cases*—millions of *multivall bags*—and millions of *food wraps* add up to *trillions* of impressions made by this unique letterpress ink. Developed and patented over 15 years ago by GPI and still unsurpassed for both press performance and print quality. Take advantage of GPI's moisture-set ink leadership and experience—call for a GPI-man today.

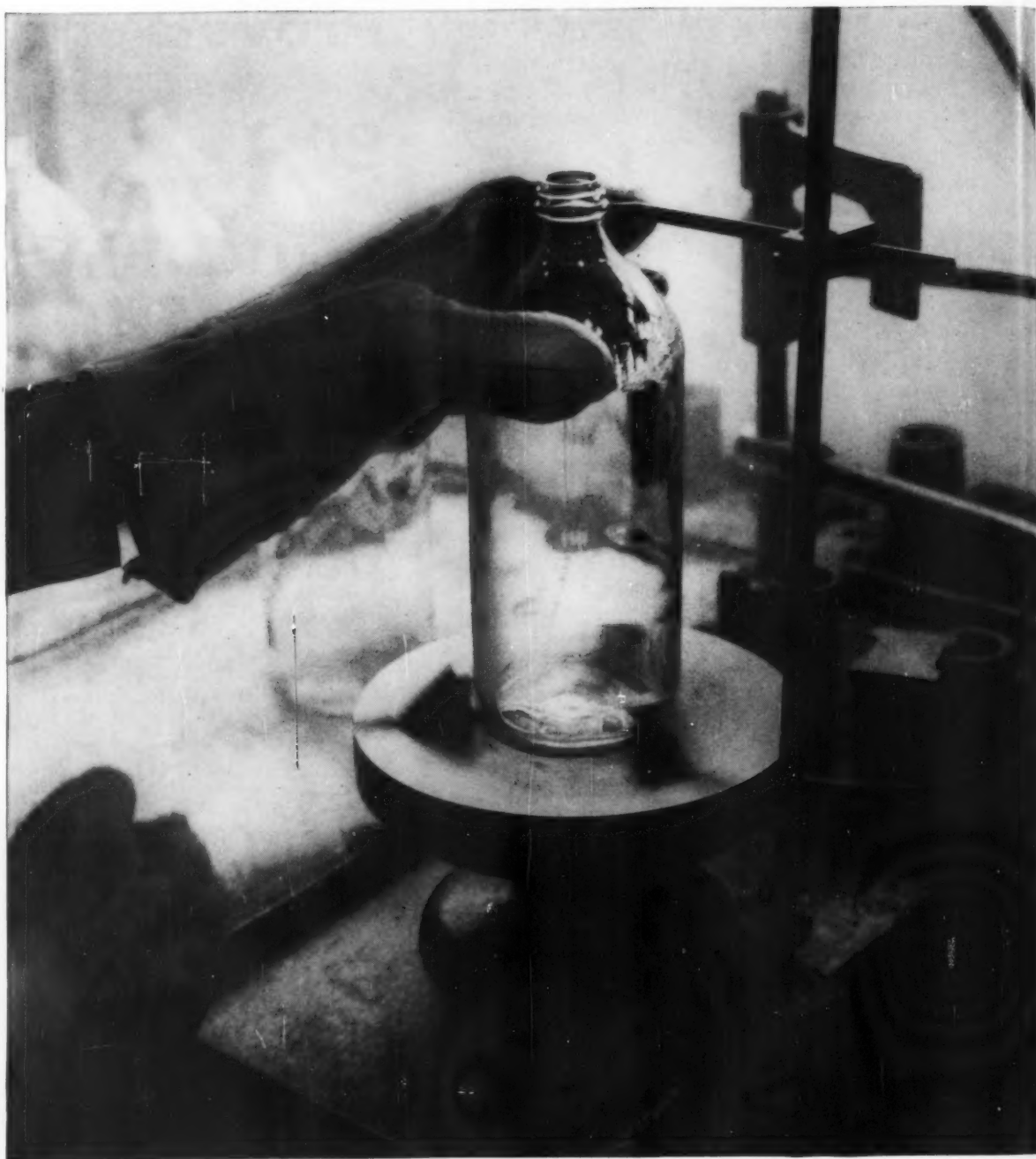


General Printing Ink Company

Division of **Sun Chemical Corporation** • 750 Third Avenue, New York 17

Branches in all principal cities

Sun Chemical's Graphic Arts Group: GENERAL PRINTING INK Gravure, Letterpress, Offset Inks and Supplies GEO. H. MORRILL Newspaper Inks
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PRECISION IN GLASS means effective quality control measures. At the seven plants of Knox Glass, quality control is more than a routine procedure, it is a continuing crusade. Qualified Knox engineers and research teams are constantly studying, planning, and inventing new and better quality control methods. This assures Knox customers of the highest possible precision quality in any of Knox's complete line of glass containers. Find out how Knox can quickly, efficiently, meet your glass container needs. Contact:

KNOX GLASS INCORPORATED • KNOX, PENNSYLVANIA



LusterBoard

... CURE FOR MEDICINE PACKAGING

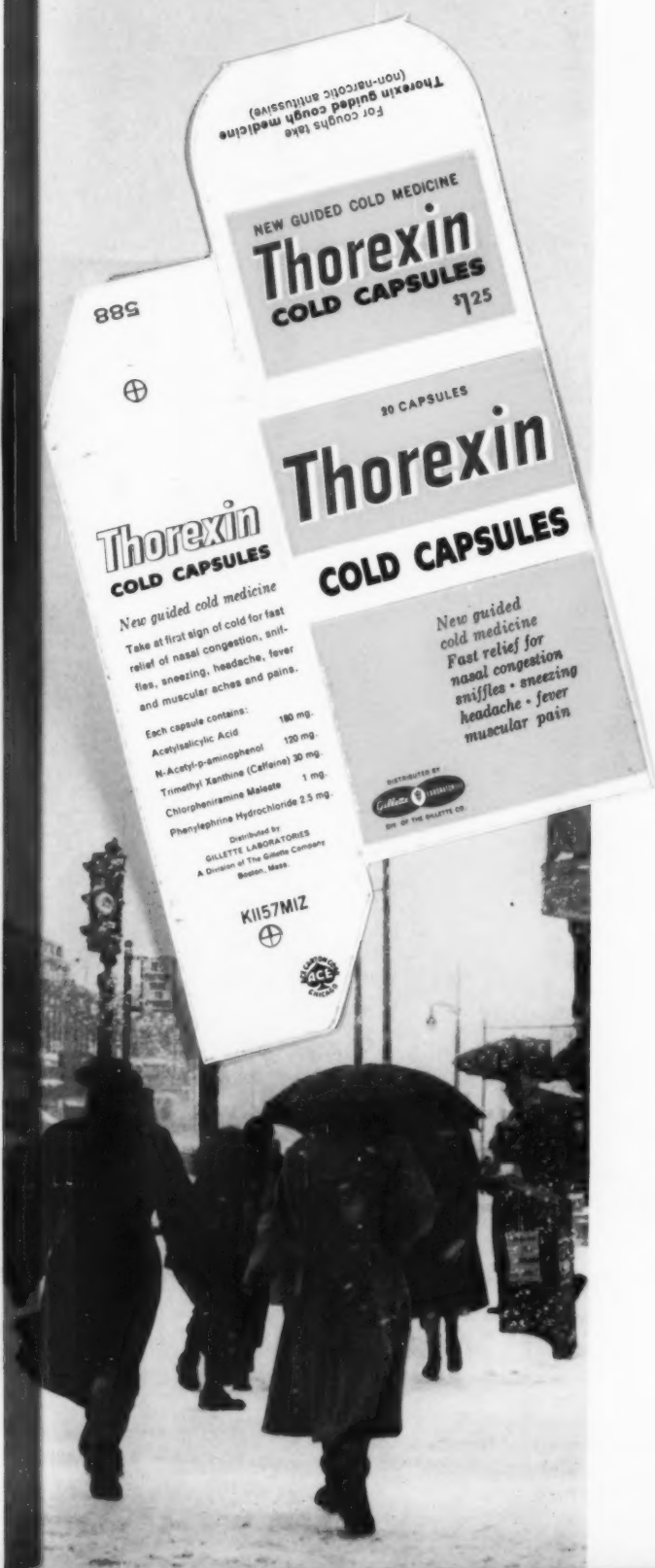
When the Gillette Laboratories marketed its new medicine, Thorexin Cold Capsules, top-quality packaging was required. Mirror-smooth 16 point LusterBoard was selected to do the job. Manufacturers of other fast-selling items . . . candy, cosmetics, First Aid supplies, lingerie, textiles, food, beverages and many others . . . have also discovered how LusterBoard presents a product favorably, makes it stand out on the shelf. Here are a few of LusterBoard's advantages:

- ★ Maximum fidelity of halftone reproduction
- ★ Fast ink setting
- ★ Smooth folding, superb embossing effects
- ★ Strength equal to or surpassing boxboards two to four points heavier
- ★ Range of 14, 16, 18, 20, and 22 point thickness

Samples, demonstration pieces, and technical information are available from:

*S. D. Warren Company
89 Broad Street, Boston 1, Mass.*

WARREN'S
LusterBoard





LUXURY-MOOD PACKAGING... with the ba

Cellophane gives a crystal-clear showcase look, jewel-like color printing, protection against soiling... plus high-speed packaging

People like to see what they buy. That's why it's smart to start with transparency in package planning. Crystal-clear Du Pont cellophane lets your product's color, shape and texture sell for itself... takes on flattering colors for package designs... gives you excellent vapor

and moisture protection... high-speed production. This balance of properties makes cellophane the most efficient packaging material you can use.

New, extra-brilliant, extra-protective "K" cellophanes are the culmination of 34 years of transparent packaging ex-

perience at Du Pont. Let this experience help you to a better package. See your Du Pont Representative or, for printed films and bags, your Du Pont Authorized Converter. E. I. du Pont de Nemours & Co. (Inc.), Film Dept., Wilmington 98, Delaware.



the basic sales power of pure transparency



REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

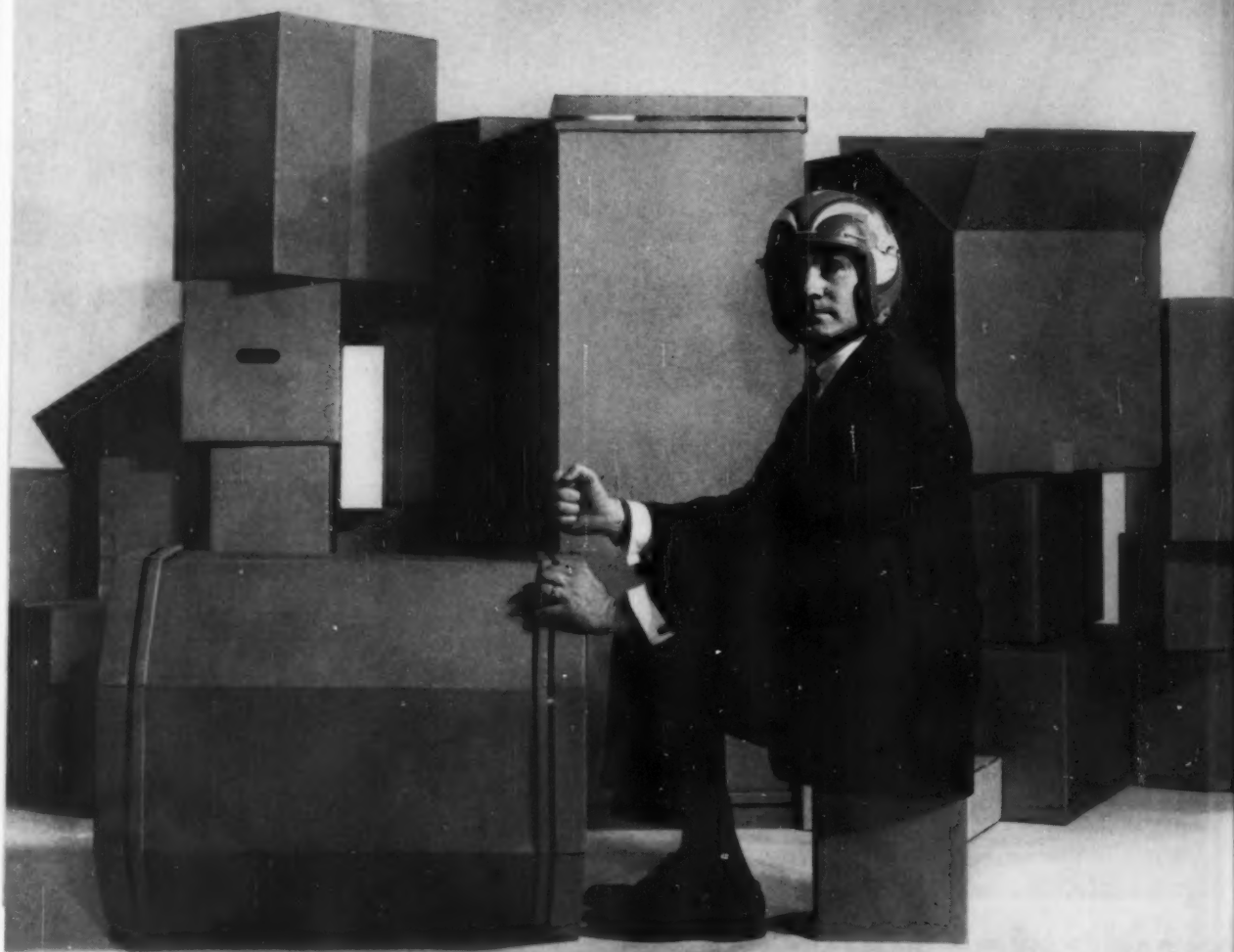
DU PONT
cellophane

GAYLORD PILOTS YOU TO JET-AGE PACKAGING

Looking for ways to up-date your packaging procedures? Your Gaylord pilot can help you speed production, increase product protection and improve promotion. At down-to-earth packaging costs.

Precision corrugated boxes by the millions or engineered packaging. Gaylord is skilled in both. Case histories? Roger and over . . . to your G-Man.*

**Your Gaylord Man—of course*



GAYLORD
CONTAINER CORPORATION

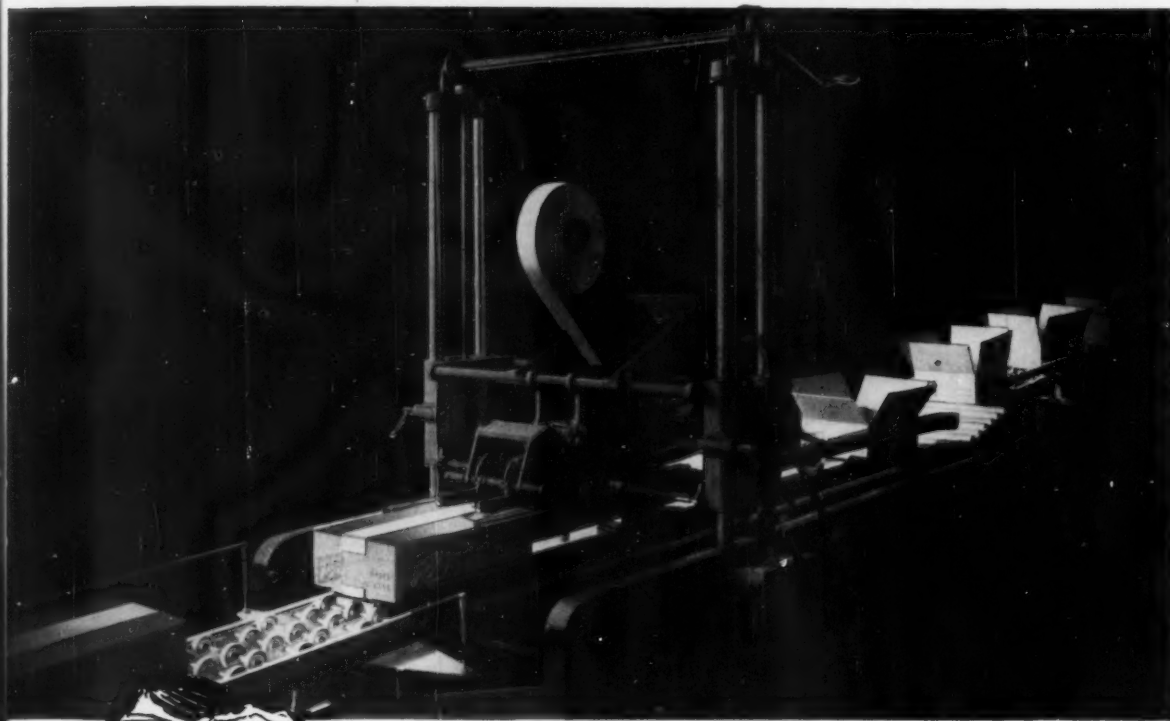


HEADQUARTERS, ST. LOUIS
PLANTS COAST TO COAST

DIVISION OF **Crown Zellerbach Corporation**



Only Machine that Automatically Tapes Over 2000 New or Re-use Cartons Per Hour ...and reduces labor costs as much as 80%, too!



Only the **WAGNER M-20** Can Guarantee Performance Like That

And look at just a few of the other features built into every Wagner M20—

1. Adjusts to any carton size in a matter of seconds, not minutes.
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M-20 TAPING
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*Please send complete information about the
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Milwaukee, Wisconsin

LONG ...

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..... FAT or TALL ...

SURE-WAY
PACKAGE CASER

handles them all!

CUTS CARTONING COSTS

The "Sure-Way" is the most versatile and economical automatic package caser on the market today. In some installations it has realized savings of up to 70 and 80% in man-hours alone!

MANY IMPORTANT ADVANTAGES: Even with its high capacity (up to 500 packages per minute depending on package size, type of loading case and casing pattern employed) the "Sure-Way" is near-human in gentleness to packages, over-wraps and labels.

It's compact, too — space requirements are cut as much as 80%. Other features include:

Complete safety through automatic controls • Broad flexibility of loading patterns • Handles variety of case and package sizes
Loads top, end or side opening cases • Low power requirements
Moderate capital investment • Extremely low maintenance costs

Typical products handled include cereals, detergents, bar soap, sugar, cake mixes, oleomargarine, cigar boxes, frozen foods, feed and seed, and pharmaceuticals.

*Exclusive Distributors: Food Machinery and Chemical Corporation

VERSATILITY

Change parts make it possible to modify the Sure-Way for handling numerous different size packages and casing patterns.

Several models are available also to meet such special applications as required for fragile prod-

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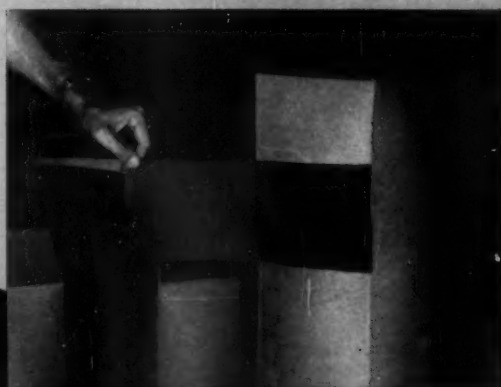
Putting Ideas to Work



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Sure-Way Caser Equipment

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Containers and wrappers come away easily and cleanly, even from sticky asphalt.

Nothing Sticks to Paper

COATED WITH A **SYL-OFF** COATING[†]

If you store, handle or package sticky products, you and your customer can speed up production and processing, keep quality high, and save on shipping costs too, — by specifying paper coated with one of the new Syl-off* silicone paper coatings developed by Dow Corning.

Paper and paperboard, from glassine to boxboard, coated with Syl-off, have excellent anti-adhesive characteristics. Even the gummiest of materials . . . adhesives, asphalt, candy, glue, unvulcanized rubber . . . are easily, quickly, and cleanly removed from wrappers or interleaving sheets coated with Syl-off.

Applied to paper, a Syl-off coating does not alter the stock, will not migrate or transfer, and will not contaminate packaged products.

Applied one or two sides, depending on the proposed use, Syl-off coatings are effective, permanent, and economical. What's more they're lighter in weight than conventional release coatings, which means additional savings in shipping costs.

Investigate the use of paper coated with Syl-off. Write for free samples, full information and list of suppliers.

[†]We're sure there must be exceptions, but of the more than 100 materials tested to date, none has been found to stick — except a silicone adhesive.

DEPT. 739

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silicones

Dow Corning CORPORATION
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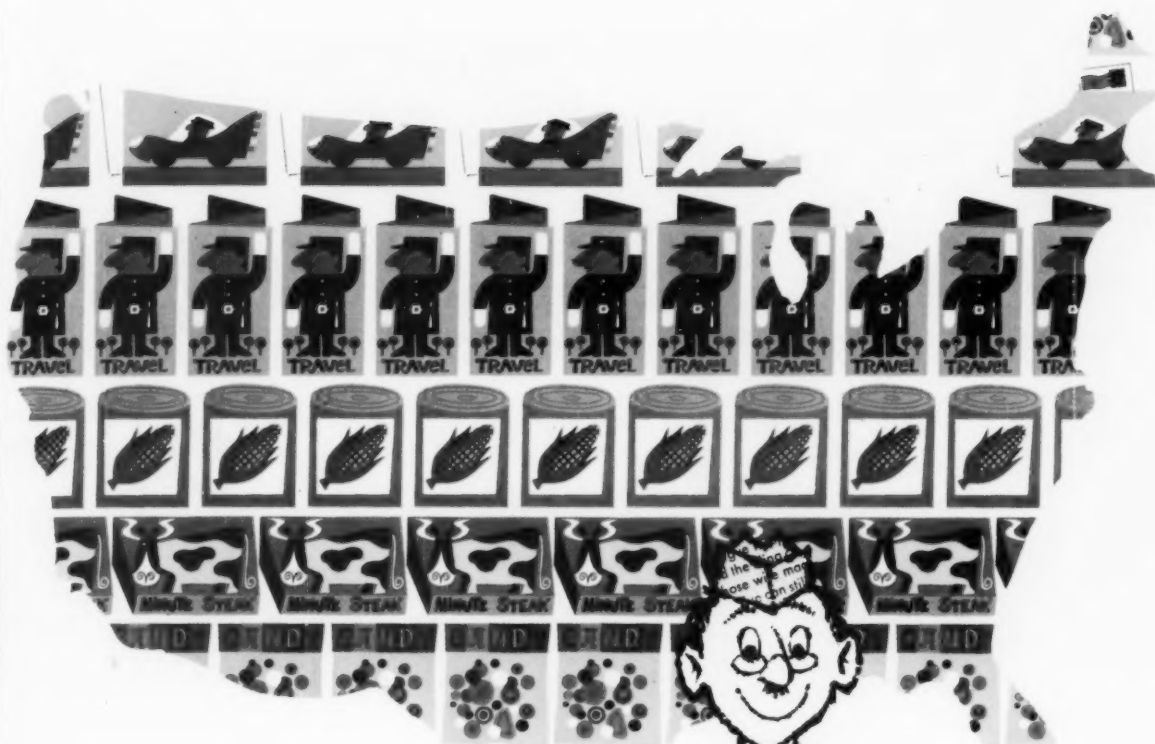
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The extra punch of Crocker full color lithography is available to you anywhere in the country. We operate plants on the East and West Coast and maintain a national sales-service organization.

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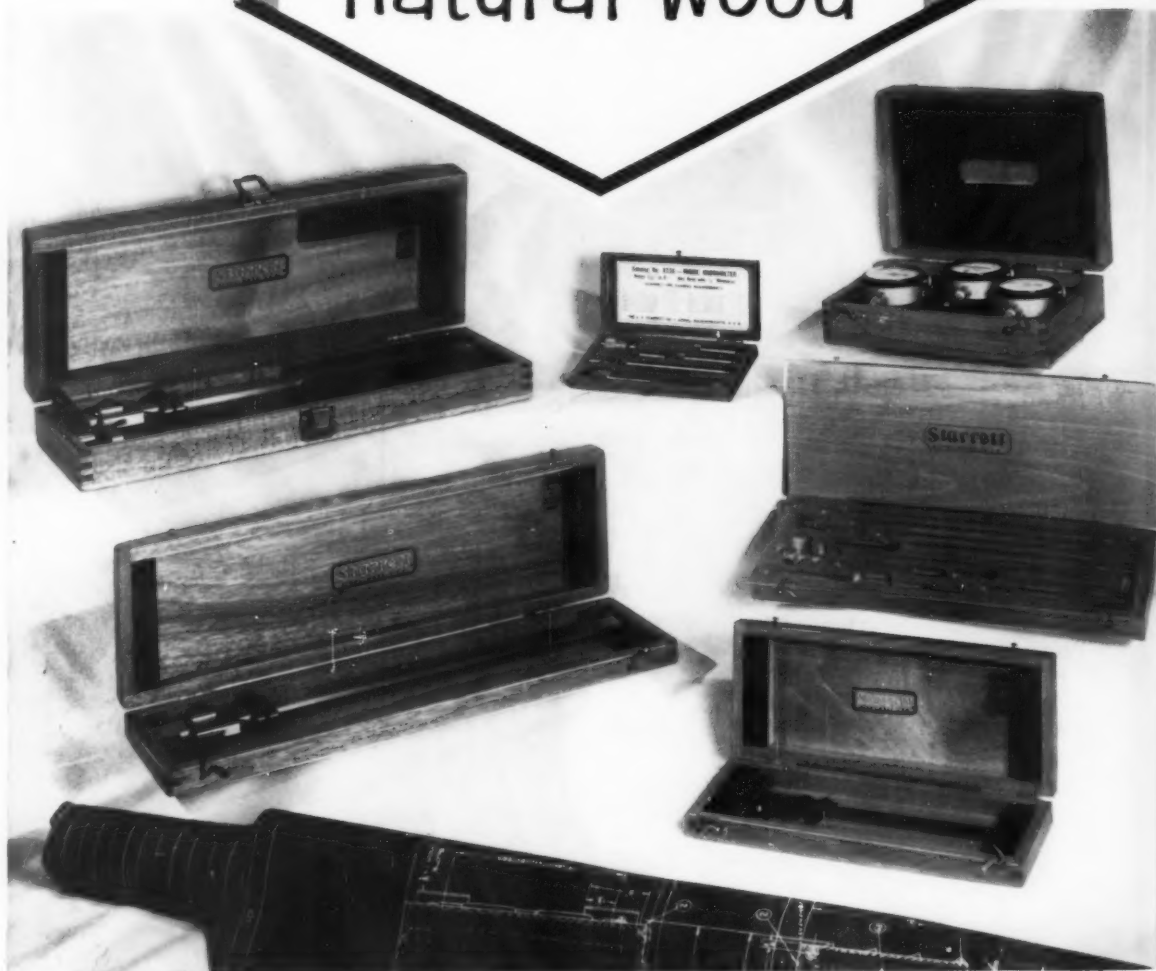
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NOTHING SELLS LIKE

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NATURAL WOOD FOR protection

To add protection, natural wood is the natural choice. For permanence and craftsmanship of package, The L. S. Starrett Co. chose these beautifully-constructed, durable cases of genuine mahogany and other fine woods for all its precision tools and instruments.

Whatever your sales appeal, it can be enhanced by the tasteful touch of wood packaging. Whatever the character of your product, Dunning can help you express it with the appropriate package or display. Select from an unlimited variety of woods, textures, grains, and finishes; add prestige and protection at lowest cost. No other packaging material is so versatile or appealing. And in the skillful use of fine woods, no one is so experienced as Dunning.

Like to see more dramatic applications of wooden boxes, cases and displays, gift and specialty items? Write today for complete information.



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At Peter Paul, packaging is a team decision



Packaging plays an increasingly important role in the confectionery industry. At Peter Paul, for example, almost every major department is represented on the packaging team. And, with folding boxes continuing to be one of its most successful types of packages, Peter Paul also calls on the skill, experience and facilities of its largest suppliers, among them Federal Paper Board.

Federal produces winning packaging for famous companies in many industries. Is your Packaging Committee familiar with the ways in which we can be of service to you?

FEDERAL PAPER BOARD COMPANY, INC.

SEVENTEEN BOARD MILLS AND CARTON PLANTS FROM THE ATLANTIC SEABOARD TO THE MISSISSIPPI RIVER
EXECUTIVE OFFICES: BOGOTA, NEW JERSEY

Available Now!

Your own Product in Water-Soluble PVA Packages for Market Testing and Evaluation

So revolutionary is water-soluble packaging in Mono-Sol's Polyvinyl Alcohol Film, that market testing and other types of evaluation are "musts" . . . before production runs are considered.

Mono-Sol is now prepared to make *limited runs* of heat-sealed packets and pouches to meet the needs of those desiring to undertake such testing without machinery investment or interruption of regular production.

Mono-Sol PVA packaging is ideal for

powders, solids, and many liquids. The user simply drops the package into cool or hot water, stirs, and presto! It completely dissolves, releasing its contents into solution.

To make a packaging survey of your product, write Mono-Sol today. Send approximately 4 ounces of your product to help us determine its suitability for water-soluble packaging. Tell us how many test packages you need, the weight per package, and your current packaging requirements.



**JUST A FEW OF THE PRODUCTS SUITABLE FOR
MONO-SOL PVA FILM PACKAGING ARE:**

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| • Soaps | • Medicinals | • Dyes |
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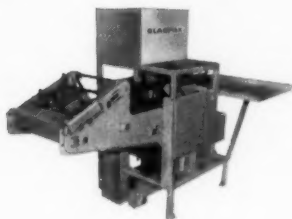
fast-moving foursome

Take four Anchor Hocking decorated tumblers—package in a handsome Glaspak carton and you have smart multiple-unit merchandising with eye and buy appeal aplenty.

Glaspak cartons frame your products, leave them clearly visible for easy identification. Windows on one or both sides of Glaspak make your products easier to see—easier to sell.

Safe, too! Glaspak's exclusive Window-lock actually makes glass units an integral part of the carton. Eliminates the need for special dividers and protects your glass from shipping and handling abuse.

Glaspak cartons are made to hold 2, 3, 4 and 6 glass units, depending on size. Write today for details.



Glaspak machines, manufactured solely by Gardner, automatically pack, seal and deliver 20 cartons per minute (depending on the number of units per carton).



Persuasive Packaging

DIAMOND GARDNER CORPORATION



THE GARDNER DIVISION

DIVISION OFFICES: Middletown, Ohio

Paper Needs the "Touch of Talent"

Papers of the 1880's were probably among the finest ever made — some of which were especially surfaced for chalk drawings . . .

yet it still took the genius of a Renoir with his pastels, to convert mere paper into a work of art that will be treasured timelessly.



On paper you will find some of man's greatest work, whether art, philosophy, or a practical package designed to sell. It is in this commercial field that Nashua's talents can create masterpieces for you.

NASHUA TALENTS AVAILABLE TO YOU . . . Creative Design • Paper Chemistry • Package Engineering
Coordinated Packaging • Quality Production • Procurement Versatility . . . Nashua Corporation, Nashua, N. H.

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September 1958

Featured in this issue . . .

The sales-making importance of consistent packaging research

How much packaging research is done today? How much does it cost? How much does it contribute to increase sales? To find answers to these vital questions, MODERN PACKAGING has just completed a survey of 1,074 companies active in 13 principal lines of packaged products. The results are significant. Considering the respondent sample as representative of the entire packaging field, eight out of 10 companies employ packaging research to some extent (although 64% use it only sporadically and have no planned program), plowing back 0.3 cents of every sales dollar for the purpose. From this investment, companies that have used packaging research consistently and effectively for at least 10 years reap sales increases nearly double the average for most packaged goods.

Get the details in "How Much Research?" p. 99

High-production breakthrough for linear-polyethylene bottles

Lever Bros.' introduction of Swan detergent in a linear-polyethylene bottle is a strong indication that all-plastic, blow-molded containers for mass-produced products can now compete on an equal price basis with comparable metal containers. Lever says its handsome pink bottle, in the 12-oz. size, costs about the same as the pour-spout metal or composite metal-plastic cans used almost universally today for packaging liquid detergents. Consider these other points about the new Swan bottle: It is one of the first blown bottles to use the new, stiffer linear polyethylene. It holds in volatile ingredients without a liner. And it marks the entry of the largest producer of glass into the plastic-bottle field.

Turn to "New Economy in Plastic Bottles," p. 104

Beer makes its bow in economical aluminum cans

Stealing a march on mainland packagers, Hawaii Brewing Corp. is first on the market with aluminum cans for its Primo beer. Besides their attractiveness and light shipping weight, the cans offer the consumer appeal of fast chilling and cold retention. A bonus economy factor: They can be salvaged, resmelted and cast into slugs for repeat trips through a continuous impact-extrusion can-making and filling line now turning out 57,600 cans per day. Consisting of 16 interlinked machines, this completely automatic line performs 21 separate operations.

Don't miss "First Aluminum-Canned Beer," p. 106

Boilable portion packs of polyethylene-coated paper

Significant for their user convenience and packaging economy are the boilable, polyethylene-coated paper pouches used by East Coast Marketers for individual portions of frozen vegetables. Available now to the institutional trade, the items may soon move into mass-market competition with conventionally packaged frozen foods. These new, liquid-tight packages are reported to cost about one-fifth as much as comparable boilable pouches. The secret is in the resin—a medium-density polyethylene with good resistance to heat and water-vapor transmission.

Read about it in "Heat-and-Eat in Paper," p. 136

Paper wraps: new improvements for dominance in a competitive field

Despite the inherent economy and solid acceptance of paper wraps—the lowest-priced protective packaging of its kind—this veteran industry faces a serious challenge. It is a challenge posed by constant improvements in the printability, high-speed machine handling and cost of competing wraps made from non-paper materials. Yet there is obvious

optimism among paper-wrap converters and it is keyed to steady product improvement which capitalizes on the proved packaging value of paper, yet meets the competition and satisfies customer requirements by supplying new paper wraps that may combine in one product the advantages of paper and those of the same new materials that are challenging paper's position. For the full details on developments,

Read this month's Supplier-Industry Survey, "Paper Wraps," p. 112

The sparkling packaging debut of polystyrene film

With its biggest problem licked in the laboratory, polystyrene film has at last made its debut in the packaging field. The problem, which limited early polystyrene film to a very narrow application range, was that it was oriented in only one direction. Now, by a process of controlled biaxial orientation, this sparkling, low-cost, dimensionally stable 1-mil film has sufficient toughness and flexibility to make it a serious contender in certain areas of packaging. Present drawbacks of the film are that it is not heat sealable and (although it is non-toxic, odorless and tasteless) its high gas and water-vapor permeability make food applications selective. Nonetheless, it is being used in window cartons (particularly for bacon, because it is impervious to animal fats and salts and can withstand temperature and humidity variations in refrigeration); in pouches and envelopes, and in glue- or solvent-sealed overwraps. For a roundup on current applications of this film and for a technical report by F. C. Dulmage on its development.

See "Polystyrene Films in Use," p. 122, and "Polystyrene Film," p. 154

Seagram's 20-minute production miracles

Operating at Seagram Distillers Co.'s Lawrenceburg, Ind., plant is a liquor-bottling line that might well arouse the envy of an expert in military logistics. So precisely is it engineered that incoming carload lots of case-packed empties are filled and on their way to customers in just 20 minutes—without warehousing, double handling or delay. This smooth, swift production schedule is carried out without a hitch day after day, despite the complexity of the operation, which includes the need to process seven different bottle sizes each for two brands, to comply with the varying stamp requirements of 33 states and to satisfy the two-bottles-per-second hunger of 11 packaging lines. To find out just how Seagram does it and saves on space and labor costs to boot,

See "Unloading to Shipping: 20 Minutes," p. 140

Kid-glove crating in corrugated cuts furniture handling, delivery costs

Here's a report on an industry trend: "factory-fresh" packaging that completely encloses furniture in tear-strip-opening corrugated shippers that remain closed until the product is delivered to the customer's door. In this type of packaging, being used with modifications by an increasing number of manufacturers, the furniture rides safely cushioned inside the carton, rather than being fastened directly to it. Advantages: sharp reduction (as much as 20%) in back-of-store handling costs; customer knows she's getting a factory-fresh model, so complaints are fewer.

Read "Furniture Goes to Corrugated," p. 131

Precision method of testing film toughness

As the variety and usage of packaging films increases, it becomes more important to measure accurately the toughness property of such materials. Commonly used for the purpose are bag-drop and falling-ball tests. But, say the authors of this article, the tensile-impact test—in which the physical energy required to break the specimen film can be read directly from a sensitive instrument—offers greater accuracy, is versatile, requires only a small sample and can accommodate all films. A technical report by R. H. Carey and M. S. Nutkis.

See "Tensile-Impact Tests on Films," p. 147

Brilliant black carton for a dairy product

Why a black background for a sherbet carton? At Beatrice Foods Co., such a striking use of color is a reflection of package redesign aimed at greater consumer recognition of its Meadow Gold dairy products in all promotional media and at the point of purchase. Although the black carton is the eye-stopping highlight of the program, this food packager is realizing healthy sales with across-the-board improvements that make capital of the package's function as a self-selection salesman.

See "Black Beauty," p. 116

MODERN PACKAGING



Modern Packaging survey discloses most companies are fumbling in packaging research. Those who use it consistently have 10-year sales increases double the average

The title of this article is a three-bladed question, the answers to which should be of vital interest to packagers everywhere.

How much packaging research is being done today? *How much* does it cost? And *how much* does it contribute to increased sales?

To point the way, at least, toward answers to these questions, MODERN PACKAGING has just completed a questionnaire survey of packaged products. The results are not comprehensive, but they are, perhaps, as significant in the unknowns as in the knowns. If the sample can be considered as representative of the entire packaging field, the following conclusions can be drawn:

► **How widely used?** Eight out of 10 packaging companies employ packaging research to some extent. But 64% use it only on occasion and have no planned program of packaging research.

► **What does it cost?** Among those companies which have a planned program and known costs, expenditures for packaging research now average about three-tenths of 1% of sales.

► **Does it pay?** Sales increases of those companies which have used packaging research for at least 10 years have been nearly double the average for most packaged goods. Sales of the research-minded packagers in the 10 years 1947-57 went up an average of 91.3%. The over-all gain in dollar volume of all non-durable goods in the same period was only 54.2% and some major package-using industries, such as foods and beverages (up 36%), were well below that.¹

And as evidence that those companies with a 10-year record of packaging research are well aware that it pays, the survey discloses this interesting

¹Source: U. S. Department of Commerce, Office of Business Economics.

fact: While their sales were nearly doubling, these companies, on the average, were nearly *tripling* the plowback of sales dollars into package research. Average investment of these companies for this type of research in 1947 was only 0.11% of sales, as against 0.34% of the increased sales of 1957. Dollar-wise, it appears that these companies are spending about five times as much for packaging research today as they did in 1947.

Against this clear picture of research payoff for a minority of companies, there is a confused and discouraging report from a majority of the packagers whose companies were covered by the MODERN PACKAGING survey.

Only 96 of the 1,074 companies contacted were able to give reasonably complete answers to the questions. This 9% segment contrasts with 20 to 25% on previous MODERN PACKAGING surveys on other subjects going to a similar list of companies. Yet, the response is in line with a pre-test of this survey, made by personal interviews, which showed that although eight out of 10 companies were aware of packaging research and used it to some extent, only one in 10 was sufficiently posted on the nature and cost of such research to be able to answer all or most of the questions. Research in packaging in 90% of the companies, therefore, appears to be a haphazard business.

Few firms use all of the basic forms of packaging research even on the occasions when they are developing a new package. Questioned as to their latest package developed for a new product or an existing product, less than two-thirds (59.4%) indicated that they used physical or chemical research

on protective and handling qualities. Less than half (42%) used preliminary consumer research to test visual reactions to design and color. Less than half (42%) used consumer-preference research to test preferences for completed proposed packages. And finally, less than half (44%) followed through with market testing to check their sales of the new vs. the old package.

In view of the investments involved in packaging and its critical effect on sales today, it is surprising to find that apparently 40% of packagers apply *no* physical or chemical research to a new package (either in their own companies or through outside agencies or suppliers); 58% use *no* consumer research, and 56% will introduce a package with *no* prior market testing.

Among the companies studied, original package development is much more apt to be done by company personnel than by outside specialists. The majority (85.5%) cited their own resources in connection with their latest package development, although it was apparent that in some cases both company and outside resources were used. Packaging suppliers were credited with at least some of the development work in 53% of the cases; advertising agencies in 28%, and professional designers in 27%.

When the proposed package reached the point of testing on laboratory, consumer and merchandising aspects, company facilities also scored well ahead of outside services in all cases.

If it is true, as indicated by returns from those able to give figures, that the average packager is spending almost one-third of 1% of the sales dollar



Consumer-preference research on packaging is used by less than half (42%) of companies replying to a question as to how their latest package was developed for a new or existing product.

on packaging research, this is a rather impressive figure. The average investment by all industry in *all* research and development, including product, has been recently estimated² at 1.7% of the sales dollar. This would indicate that packaging alone accounts for more than one-sixth of the total research investment. And in non-durable goods alone (which account for the bulk of packaging activity), on the basis of government figures for total manufacturers' sales in 1957, the total expenditure in this country on packaging research could be projected to about \$519 million.

To take one company as an example: General Foods, the nation's largest manufacturer of packaged foods, has just reported publicly for the last year \$1 billion in sales and a \$10-million annual total research expenditure. If the 0.304% average figure indicated by our survey were to be applied to General Foods it would mean that \$3 million per year goes for packaging research in just this one company. That would be three-tenths, rather than one-sixth, of the total research budget, which is not illogical in a company which is said to spend 7 cents of every sales dollar for packaging materials.

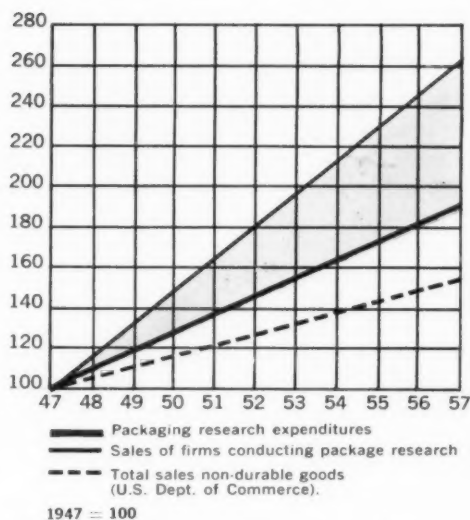
Survey method and scope

The 1,074 companies invited to participate in this survey included 936 primarily consumer-goods firms and 138 primarily industrial- or non-consumer-goods manufacturers. To insure that the survey and analysis would be conducted by professional standards, MODERN PACKAGING retained a leading market-survey firm with considerable experience in the packaging field.³

Following the pilot test by personal interview, the questionnaire was compiled and sent by direct mail, employing a single, non-follow-up mailing of (1) a personalized letter addressed to an executive of each company and requesting referral to the person chiefly responsible for packaging, (2) a printed four-page questionnaire and (3) a business-reply envelope for the return of completed questionnaires.

The return was made direct to the survey firm and MODERN PACKAGING was not identified as the interested party. Although respondents were asked to give their name, title and company name, they were assured that the final report would not reveal the identity of any person or firm.

Without any follow-up mailings there were 96 workable responses, an effectual return of approximately 9%. The numerical size of this return leaves open the probability of a 10% error, plus or minus. Nevertheless, as the survey firm points out, this



Sales doubled among firms reporting packaging-research expenditures for 1947 and 1957, whereas sales of non-durable goods rose only 54% in same 10-year period. Study shows that research spending is three times what it was in 1947.

relatively small return should provide a fairly representative sample, by professional standards.

The results are further validated by the fact that replies were fairly well distributed among firms that said their annual sales range from \$500,000 to \$100 million.

Companies in 13 manufacturing classifications were covered in the mail-out and each of these classifications was represented in the returns, with the highest return from food and grocery firms (22.9%) and health and beauty (21.9%).

In ratio of number of replies to number of questionnaires mailed, however, the tobacco industry led all the rest. Health and beauty, surprisingly enough, was well down the list. If the ratio of returns may be taken as a measure of the 13 industries' relative interest or participation in packaging research, the following table may be of interest:

| Ranking | % of response |
|-----------------------------------|---------------|
| 1. Tobacco products | 16 |
| 2. Food & grocery | 14.4 |
| 3. Sporting goods & photographic | 14.3 |
| 4. Apparel & footwear | 14 |
| 5. Toys & games | 11.8 |
| 6. Jewelry, glass & giftware | 11.4 |
| 7. Leather & rubber | 11 |
| 8. Chemicals | 8.3 |
| 9. Health & beauty | 6.8 |
| 10. Beer, wine & liquor | 6.6 |
| 11. Hardware & paint | 4.5 |
| 12. Textiles | 3.5 |
| 13. Appliances & home furnishings | 3 |

Lack of participation may arise from a variety

²By the investment firm of Dominick & Dominick, New York.
³Don White, Inc., 52 Vanderbilt Ave., New York 17.

of causes: small proportion of total output consumer packaged, as in the chemical and textile industries; or, as in the case of beauty preparations, because technical packaging research may be considered secondary to the aesthetic aspects of design.

In the 13 manufacturing classifications, consumer-packaged products are sold by the great majority (97%); packaged non-consumer products (for institutional, industrial or professional users) are sold by approximately half (53%), and bulk or non-packaged products are sold to some extent by more than half (56%) of the firms responding. However, more than half of the respondents (56%) reported more than three-quarters of their sales in consumer packages.

After breaking down their latest package-development project by types of research used and agencies employed for it, respondents were asked whether the cost of such research was considered as a direct expense, chargeable to packaging, or as indirect overhead. In all categories, the majority showed packaging research as a direct expense.

| Type of packaging research | Firms using and charging as "direct" expense |
|----------------------------|--|
| Physical and/or chemical | 70% |
| Preliminary consumer | 56% |
| Consumer preference | 61% |
| Merchandising | 59% |

In answer to the question: "How is packaging research budgeted?" nearly two-thirds of the firms reporting said they have no fixed budget for this

activity, indicating that such research is handled by special appropriations on an if-as-and-when-needed basis. One of 12 respondents (8.5%) reported a separate annual budget item exclusively for packaging research. Another group (27.5%) included packaging research either in (a) the budget for laboratory and physical research or (b) the budget for marketing research.

It is interesting to note that 56% of the replies to this survey came from top-management level—owners or partners of a business, presidents and vice presidents. Another 10% came from company officers, general managers or sales managers. Five per cent of the questionnaires were answered by packaging directors and the remaining 29% by various department heads: chief engineers, directors of marketing, technical directors, directors of purchasing, etc.

Conclusions

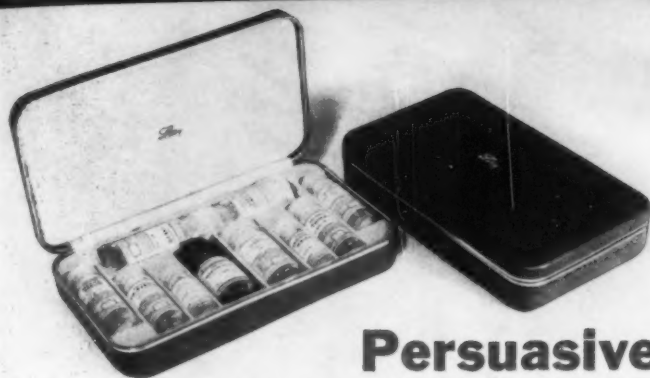
The principal broad deductions to be drawn from this survey may be summarized as follows:

- ▶ Companies with well-developed packaging-research programs have a better opportunity today to enjoy sales gains above the national average for consumer-goods industries.
- ▶ Packaging research is not yet well defined or conducted separately from over-all research programs in the majority of companies.
- ▶ The real potentials of all kinds of packaging research still have been relatively unexplored by more than half to two-thirds of the firms marketing packaged consumer goods.

PHOTO R. E. VAN ROSEN CORP.



To evaluate legibility of a table-napkin package, Hudson Pulp & Paper Corp. used this new electronic device for measuring LQ (legibility quotient). Instrument testing for visual reactions to design and color today is more and more frequently one of the steps in what was classified in our study under "preliminary consumer research."



Easy access to replaceable drugs in Lilly's "Call Case" is afforded by its injection-molded polystyrene platform.

Persuasive sampler

To encourage doctors to specify its products, Eli Lilly packs 10 pharmaceuticals in a refillable metal case serviceable enough to win a permanent place in the physician's kit

Packagers of ethical pharmaceuticals virtually deluge physicians with professional samples of their products—and with good reason. A doctor's specification of a company's drug in the prescriptions he writes can spell the difference between sales success or failure for that item.

The problem in this tough competition is one familiar to many packagers: How can you persuade influential customers to prefer and use your product rather than that of another supplier?

A way to gain this competitive advantage is suggested by Eli Lilly & Co.'s introduction of a rich-looking, permanent sample case containing 10 vials of its pharmaceuticals neatly nested in an injection-molded, washable polystyrene platform.

Distributed without charge to physicians, this "Call Case," as the Indianapolis drug firm dubs it, reflects shrewd packaging strategy that should be adaptable for dental suppliers and the manufacturers of other materials frequently specified or re-ordered by professional and trade customers.

The sturdy, hinged-cover metal box is—as its name implies—designed as a permanent adjunct to the doctor's familiar black bag, to be carried with him on calls to patients. To encourage full-time use of the case as a reminder of the Lilly name, the items included in it were selected on the basis of a doctor's almost daily need to administer one or more of the products. Because of its policy of standardized vial packaging, Lilly points out, replacements can be made from regularly sampled products, eliminating the need for sending out separate kits with every new promotion.

Besides its durability, the "Call Case" incorporates other features calculated to appeal to doctors. It is small enough (7 by 4 by 1½ in.) to fit easily

into the physician's bag or his coat pocket. To give the metal box a rich, professional appearance, it is covered with fabric-based simulated leather, tinted bluish-gray and trimmed in chrome.

The prefabricated cases are filled manually at Lilly's plant. As the open boxes travel along a conveyor belt, girls on the line pack vials into the appropriate compartments on the platform. Finally, one girl places a promotional insert in each box, then closes it for shipment.

SUPPLIES AND SERVICES: "Texol"-covered hinged metal box by Farrington Mfg. Co., Needham Heights, Mass., using Dow polystyrene for the platform.

Fast filling of Lilly cases is done manually as the boxes move along a conveyor belt. Each of the girls on the line places a different vial into its compartment. The girl near the camera slips in a promotional insert and closes the boxes.



New economy in plastic bottles

Is the breakthrough here? Lever's 12-oz. bottle

for Swan detergent, using linear polyethylene and blow molded

by high-production method, costs no more than a can

The day may be here when an all-plastic, blow-molded container for a mass-produced product can compete on an equal price basis with a comparable metal container.

Lever Bros. reports that its handsome new pink-colored polyethylene bottle in 12-oz. size for new Swan Mild Lotion Detergent costs about the same as the pour-spout metal or composite metal-plastic can which is being used almost universally today for packaging liquid detergents. And it is being used independently of any squeeze function—an application of the polyethylene bottle which in itself is highly significant.

The new Swan bottle is significant on other counts as well:

1. It is one of the first blown bottles to use the new, stiffer, linear polyethylene.

2. Because of the density of the resin, it contains volatile ingredients of the detergent without the need for a liner.

3. It marks the entry of the largest producer of glass containers into the plastic-bottle field, reportedly using a new type of high-production blow-molding equipment which effects marked economies.

The cost comparison with metal does not take into account last month's 3% rise in steel, which, with the price of polyethylene resin holding steady, will further improve the plastic's position. Lever Bros. points out, however, that competitive container cost at present is reached only in the smaller (12-oz.) of two sizes of plastic bottles now being test marketed.

The larger (22-oz.) polyethylene container was still, as of last month, slightly more expensive than a metal can of comparable size, principally because of the greater wall thickness required for the larger size. So far, a third larger size has not been introduced. The two initial markets were Milwaukee and Scranton-Wilkes Barre.

The supplier reports that economy is due "to the advanced technique developed in bottle-making machines and to the nature of the high-density polyethylene from which the containers are fabricated." Greater rigidity, inherent in the high-density resin,

permits the effective use of thinner bottle walls.

According to Lever, container cost was not the only consideration in the selection of this new package. Swan Lotion Detergent is a new product, designed for mildness to overcome consumer objections to previous detergents used for washing dishes and fine fabrics which were considered "hard on the hands." Other claims for the product are that it cuts grease faster with a superior fat-emulsification agent and washes fabrics brighter because of a fluorescent dye ingredient.

Lever wanted a package to emphasize these product improvements—a container with a less commercial look and more feminine in appeal (pretty as the pink lotion detergent in it) that would be easier to handle and would not rust, dent or leak. The improved plastic, providing better protection against moisture loss and greater resistance to chemical ingredients of the product, plus more comparable costs, swung the decision.

The new packages were adopted after months of research—both by the supplier and in Lever Bros.' own package-research laboratory in Edgewater, N. J., where samples were put through exhaustive chemical and physical tests, followed by actual test shipments. Experiments were conducted in a wide range of wall thickness before it was determined that a wall of 30 mils for the 12-oz. size and 40 mils for the 22-oz. size would do the job.

Extensive panel tests showed that consumers preferred the new polyethylene container six to one over a metal container for the new product, according to Lever Bros.

The Swan Mild Lotion Detergent containers are made with private molds designed with slight recessing around the cylindrical wall to accommodate a five-color-printed, aluminum-foil, wrap-around label in a manner that helps to reduce scuffing. Being recessed slightly from the outside circumference of the container, the labels are not subject to rubbing against one another on the shelf or in shipment, the company says.

Experiments were made with direct printing of label information on the container itself, but this

Pretty pink containers with cosmetic look bring a new concept in visual appeal to soap and detergent shelves of the supermarket. Moisture-resistant foil labels, five-color printed, permit brilliant metallic accents. Recess in molds is designed to reduce scuffing of labels.



technique thus far has not proved satisfactory.

Aluminum foil for the applied label not only provides a moisture-resistant material for wet hands, but permits brilliant metallic accents in the design printed with opaque and transparent inks. The background color of the label is opaque pink, the same shade as the container—a color which, in turn, simulates the actual pink color of the product. The swan motif is printed in opaque white with the natural foil showing through for the beak. The brand name, "Swan," is printed in mineral-blue transparent ink, giving full impact to the metallic effect. Gray is used for the words "mild lotion detergent" and a lighter opaque blue for the sell copy: "for dishes . . . fine fabrics."

The private-mold polystyrene screw cap is colored pink to match the color of the container. Filling of the new product is done by a contract packager.

The supplier maintains that the polyethylene con-

tainer has potentials for reducing manufacturer's costs because its use usually will obviate the need of such protective devices as carton pads, liners and sometimes even inner partitions.

Lever Bros. is shipping the new Swan Mild Lotion Detergent in corrugated cartons which have only single divider strips.

While economy may not have been the original objective behind the selection of the appealing new pink plastic containers, the terse comment of a Lever spokesman, "Metal's been going up; plastics, coming down," makes clear what's behind this company's thinking.

SUPPLIES AND SERVICES: High-density polyethylene containers by Owens-Illinois Glass Co., Toledo. Foil labels by Strawberry Hill Press, Inc., 23-02 49 Ave., Long Island City, N. Y. Polystyrene closures by Gibson Associates, Berkeley Heights, N. J. Label design by Jim Nash Associates, 527 Madison Ave., New York 22.

First aluminum-

Hawaii Brewing steals a march on mainland packagers with the first continuous impact-extrusion can-making and filling line, now turning out 57,600 cans of Primo per day

For many months, cost-conscious American brewers have had their eyes on Goettingen, Germany, where aluminum slugs were being fed into one end of a line to emerge as filled and labeled cans of beer at the other. This seemed to be a revolutionary new principle in packaging, which could reduce material costs to the minimum and keep can supply under the control of the brewer.

Today, they can look to Hawaii, where just such a principle is being applied by an enterprising Honolulu brewery to turn out the first aluminum can of beer ever produced and marketed on American soil. The packaging repercussions are certain to ripple the Pacific all the way back to the mainland.

At the Hawaii Brewing Corp., one continuous automatic operation, the first of its type to be seen in any American packaging plant, does this:

1. turns out one-piece, 11-oz. aluminum-can bodies at 120 a minute per machine simply by hitting a $\frac{3}{16}$ -in.-thick disk of aluminum in a die with a piston driven by 400 tons of pressure.
2. trims and flanges the rough-edged can.
3. washes, etches and dries the can in a 36-ft. continuous unit.
4. sprays the interior with an alcohol-resistant lacquer coating.
5. bakes coating in an 8-min. continuous oven.
6. feeds the cans through an unscrambler into the filling line.
7. fills the sterile cans with beer in a 50-head automatic machine and then seams on the separate, concave lids.
8. sends the filled and sealed cans through a pasteurizer and cooler.
9. check weighs each can and rejects low fills.
10. applies a wrap-around silver foil-paper label.
11. automatically cartons the finished product in

End product of revolutionary automatic operation is 11-oz.-content can transformed from an aluminum slug to a filled, sealed and foil-paper-labeled container weighing less than one-half as much as tinplate can. Direct lithography of metal body soon will replace the paper label entirely.



canned beer

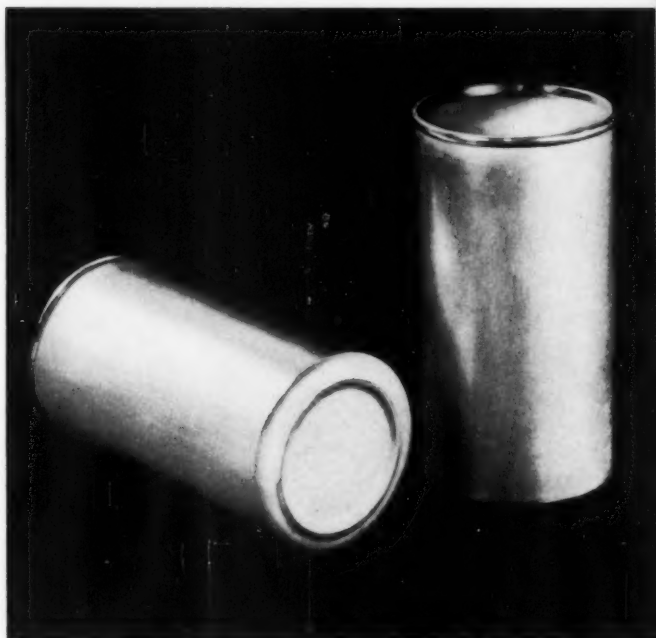
six-packs, 24-can sleeves or regular 24-can cases.

Altogether, there are 16 interlinked machines, which perform 21 separate operations.

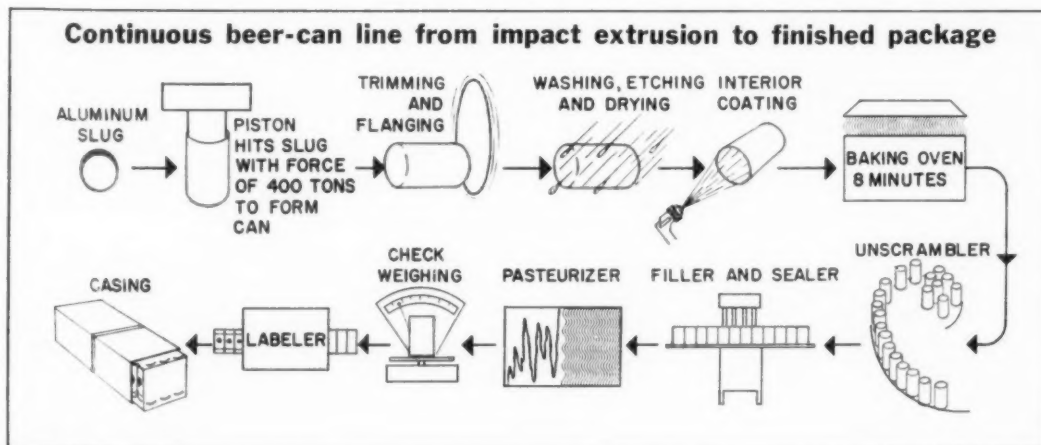
This is said to be the most completely automatic of any food or beverage canning line in the world today and, since it starts with the raw metal instead of a finished can, the claim may be justified. It is substantially improved and stepped up in speed over the German prototype which involved considerable manual and semi-automatic operation. And it permits Hawaii Brewing to utilize cans for the first time because it was too costly to ship can bodies from the mainland. All Hawaii looks to this development as a means of making its extensive canning operations independent of stateside supplies.

The revolutionary line went into operation at the end of July and it is already handling a major portion of Hawaii Brewing's top-selling Primo brand of lager beer. Production rate, using four impact-extrusion machines, is 57,600 cans per day on one shift. The package is being promoted in the island market as the "Shiny-Steiny." Its foil-paper label is expected eventually to be replaced with direct lithography of the metal in a rotary machine—already proved in prototype operations—which will fit into the line in place of the present labeler.

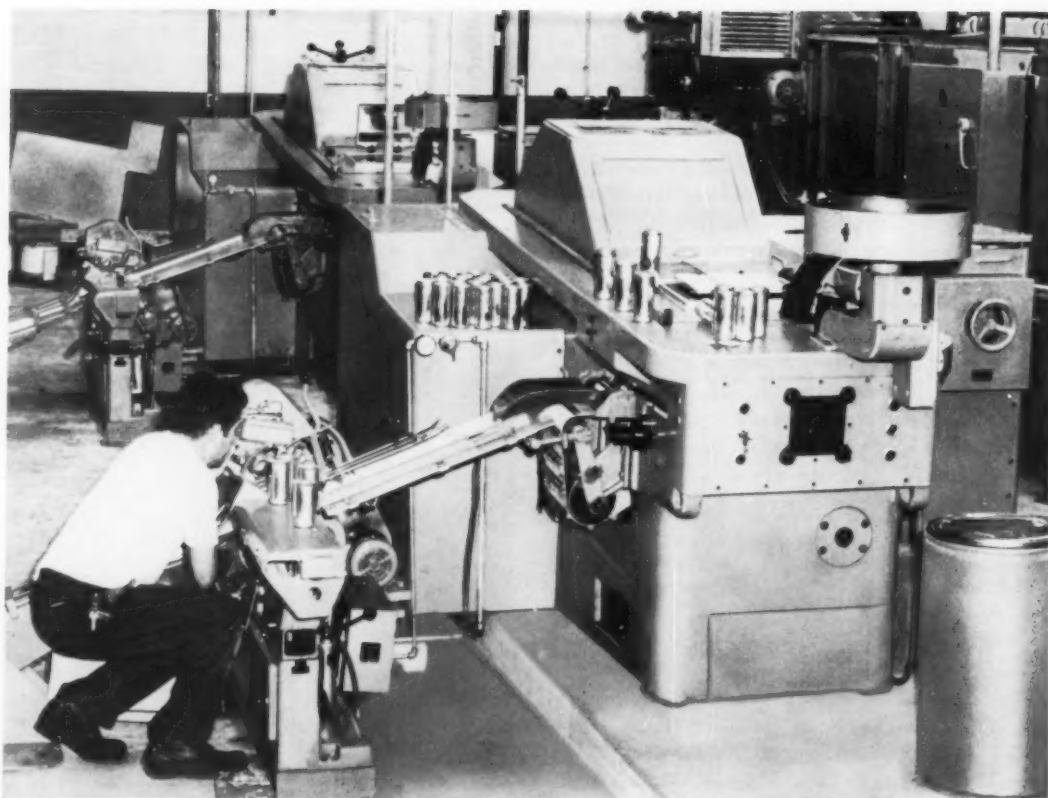
The aluminum can weighs only 2 lbs. of metal per case of 24 cans against almost 5 lbs. for conventional tinplate cans. Pure 2S aluminum is the



High polish, fast-chilling and cold-retention properties of aluminum and stackability of concave lid and ridged bottom are sales features of new "Shiny-Steiny" seamless can. Walls and lid are 12 mils thick, bottom is 30. Standard pronged beer-can opener is used to pierce lid, but a special opener being developed will remove the top completely and smooth roll the lip for a tumbler effect.



16 interlinked machines perform 21 separate operations in converting $\frac{3}{16}$ -in.-thick disks into aluminum can bodies at a rate of 120 per minute and completing all packaging steps through 24-can cartoning.



400-ton impact cold-extrusion, seamless-can presses produce 14,400 cans per day each. Operator at one of Hawaii Brewing Corp.'s four presses is shown inspecting trimmer where cans are cut down to the proper height and flanged at the top before moving to washer.

same type as used in refrigerator trays and its fast-chilling and cold-retention properties are expected to add appeal to the product. A single-ridged, rounded bottom and matching concave lid facilitate refrigerator stacking of cans. More than three years of testing of the process and product factors have gone into the development, under the direction of J. V. Purcell, vice president and general manager, and Alva Upton, engineer.

So far, the brewery reports, the cost factor of its aluminum cans "is no more than for tin cans."^{*} Economy is expected to be heightened by salvage and re-use of empty cans. Reportedly, special lac-

quers and inks have been developed that will burn off in the resmelting process, leaving pure aluminum which can be recast into slugs for repeat trips through the Primo line.

The slug from which the can body is extruded measures $2\frac{1}{8}$ in. in diameter and is $\frac{3}{16}$ in. thick. Fourteen slugs total a pound. The wall section and lid of the finished can are 12 mils each; the bottom is 30 mils. A beer can must be able to withstand about 60 lbs. per sq. in. of internal pressure. The Primo can, according to its developers, easily withstands 100 p.s.i.

At present, the cans are opened with the same pronged, push-down opener used for tinplate cans. But under development by Hawaii Brewing is a special opener that will remove the top completely and at the same time roll the lip smooth, so that the cans may be used as open-top tumblers.

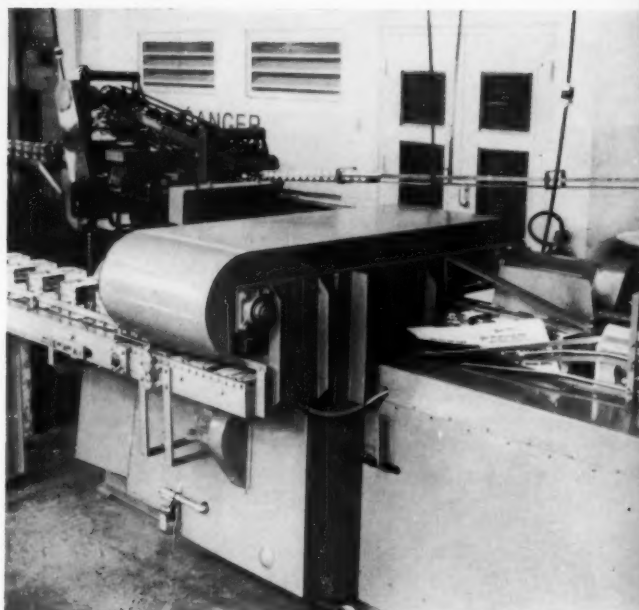
In the production process, the can body acquires such a high polish that no other finishing is necessary and only the minimum amount of cleaning is required. The glistening, silvery appearance of the

^{*}Recent price changes in both aluminum and steel have left aluminum in a position slightly less favorable than was the case when this article was written. While steel last month went up about 2/10 of a cent per pound, aluminum rose 7/10 of a cent. But aluminum in April had taken a 2-cent cut, which steel did not match. Industry sources estimate that today a 12-oz., labeled beer can will cost a mainland brewery about \$36.45 per thousand in tinplate, \$39.48 in aluminum if manufactured from slugs in the user's own plant. These figures do not reflect the possible saving in aluminum reclamation and if applied to Hawaii Brewing Corp. they would not include the saving in using an 11-oz. size nor in eliminating high transportation cost to Hawaii for empty tinplate cans, which in ship holds is charged on a space, not weight, basis. Since Hawaii Brewing Corp., if adopting tinplate cans, would have had to import them from the mainland, freight was an exceptional factor here in swinging the choice to aluminum. Approximately 35,000 aluminum slugs of the size used by Hawaii Brewing can be shipped in the cargo space required for 1,000 conventional tinplate cans.



Six-packs are formed in a novel manner because these cans lack bottom rims. Here the shell is being wrapped around six inverted containers before moving to a tucker that locks two flaps of sleeve without glue. Can bottoms are held in place by full-carton-length divider flaps; the top rims, by slits and by tabs that separate the rims.

24-can 'case' is formed on another sleeve-packing machine that assembles four six-pack carry cartons in a unique glueless "Zip-'n-Pick-Pack." Can labeler may be seen in the background.



new aluminum beer can is counted upon as an added sales feature.

At present, the slugs and lids are being shipped from the mainland. Production schedules for Primo—60% in aluminum cans, 40% in bottles—call for consumption of 60 tons of slugs per month. Within a year, Hawaii Brewing expects to have both slugs and lids produced in Honolulu from melted salvageable cans. Influence of the salvage program in discouraging roadside litter is an important plus point in scenery-conscious Hawaii.

Background

Behind the Honolulu innovation is an unusual story of joint research and development stemming from a variety of mainland interests. For due credit to all concerned, this story should be told here.

It starts with the late Louis Bronstein, a Los Angeles investor who became impressed several years ago with the future of aluminum-can packaging for foods and beverages. He traveled extensively in Europe to study what was being done there and

tried, unsuccessfully, to interest major U. S. breweries in launching a development project.

He did, however, awaken interest at the Beatrice Foods Co., Chicago (of which the Hawaii Brewing Corp. is a wholly owned subsidiary), and at the Adolph Coors Co., a Golden, Colo., brewery. In 1954, Aluminum International, Inc., was formed by Beatrice, Coors and Bronstein for the purpose of developing an economic process for aluminum beer and food cans, with the Coors company as the research and development arm of the project.

The program called for installation of the first production-scale line at Hawaii Brewing Corp. only after development and testing of the various units on a prototype line 3,000 miles away at Golden, Colo. Basic elements were adapted from the German impact-extrusion technique and aid was given by the Kaiser Aluminum & Chemical Corp., which was working on the same German process in its Aluminum Container Research & Development Laboratory in Chicago. The principal problem was to automate and speed up feeding and handling, and to improve



Light weight of aluminum cans and elongated shape of container make light work of case toting. This 24-can "case" is carried easily under the arm. Aluminum weighs only 2 lbs. in comparison with 5-lb. weight for 24 standard cans.



Tear tape around middle of lightweight pack permits retailer or consumer to break 24-can unit into 12-packs of two six-packs each. Six-pack (right) also has convenient tear strip.

upon the method currently being used in Germany.

Today, the prototype operation at Coors starts with ingot aluminum, which is continuously cast into aluminum strip, rolled down to gauge and blanked into can-size slugs at the rate of 2,000 lbs. of slugs per hour. This output is equivalent to 28,000 cans per hour for the Primo brewery, to which Coors currently supplies both slugs and lids.

After completing design and engineering work for the production line, Coors turned over its research and development findings to Hawaii Brewing and sent engineers and technicians to Honolulu on several occasions to help put the line into operation there.

The 11-oz. aluminum can for Hawaii Brewing, measuring $2\frac{1}{2}$ in. in diameter by $4\frac{3}{4}$ in. high, was specifically designed so that it could be handled on conventional can-filling equipment. Coors is now perfecting details of its own aluminum can-filling operation, which entails, among other innovations, a sterile-filling feature to eliminate pasteurization.

The Coors prototype line includes a rotary unit for four-color lithography, paced to the present 120-per-minute speed of the line. Coors spokesmen feel, however, that it will be advisable to improve the line to a speed of 250 to 300 decorated cans per minute to make the operation economically feasible for them.

Even so, Coors officials say, with the present speed of the line they are close to being competitive in cost with the tinplate can in the domestic market. And there is no question, they say, but what they can become competitive if the relative price differential between aluminum and steel is maintained.

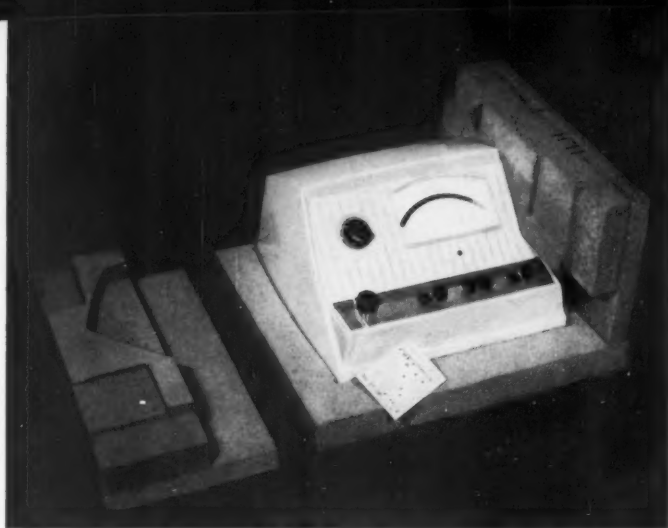
When Coors beer is introduced in the aluminum can—and no timetable has yet been set—it probably will be a 7-oz. size, to be retailed in an eight-pack, in sharp packaging contrast to the larger cans retailed today in the familiar six-packs. Coors also is banking on a salvage program, both to reduce cost and to discourage litterbugs.

Primo's zip-pack

With its market introduction, the Primo brewery also has taken advantage of the lighter weight of aluminum cans to introduce new features in multi-packing and carry cartons.

The basic six-can pack is light, compact, easy to handle and dependent [Continued on page 228]

SUPPLIES AND SERVICES: Aluminum slugs and lids for Primo cans produced by Adolph Coors Co., Golden, Colo., using Kaiser 2S ingot. Labels by Pacific Coast Foil Co., 500 Sansome St., San Francisco 11. Six-pack carry cartons and 24-can sleeves, and machines for applying them, developed and produced by Andre Paper Box Co., San Leandro, Calif.



Key elements of package for sensitive laboratory instrument are three fibreboard blocks preshaped to fit base and sides of equipment.



Final assembly of the shipping container requires fitting in the last of three set-up boxes holding instrument accessories and supplies. These boxes act as spreaders to prevent damage from lateral pressure.

Snug shipper

Beckman impresses customers by surrounding sensitive equipment with preshaped fibreboard blocks that are interlocked with accessory packages and nestled inside a corrugated container

Packages can win prizes, but there's no better reward for a packager than approval by customers, dealers and salesmen. That's why Beckman Instruments, Inc., Fullerton, Calif., thinks it has a winner in the industrial shipping pack for its new Zeromatic pH meter.

This instrument to measure the acidity and alkalinity of solutions is said to be a success in its own right, but the company notes that reports on the product include special praise for the package.

To Thomas A. Dietrich, Beckman's packaging engineer, this is particularly heartening because he believes that for industrial as well as consumer-goods buyers, the package is the first impression of the product and should reflect the careful manufacture of the product itself.

What seems to appeal to the buyers of the Zeromatic is the logical package construction. Like most laboratory instruments, the Zeromatic has a number of accessories and supplies. These are packed separately into three standardized set-up boxes, two smaller ones containing glass electrodes, the third with the rest of the accessory elements. These boxes, plus three preshaped blocks of bagasse-fibre dunnage, fit together to surround and protect the unit.

The blocks are inexpensively routed and laminated from 1- and 2-in. fibreboards, cut to shape and sprayed with a red latex coating to hold down dust

and help carry out Beckman's red-and-white design.

The bottom of the 14½-by-15½-by-10-in. corrugated shipping container is covered first with a 2-in. pad of bagasse fibre into which a 1-in. recess has been routed to match the outline of the instrument's base.

The instrument itself is placed in position and two mirror blocks, one for each side of the instrument, are inserted to hold the instrument down and prevent side motion. The blocks consist of solid sections of 1-in. fibreboard, cut to the size of the sides of the box, laminated to routed and contoured sections cut from 2-in. material. The latter fit over the top of the instrument along its edges and contain three recesses for the accessory boxes.

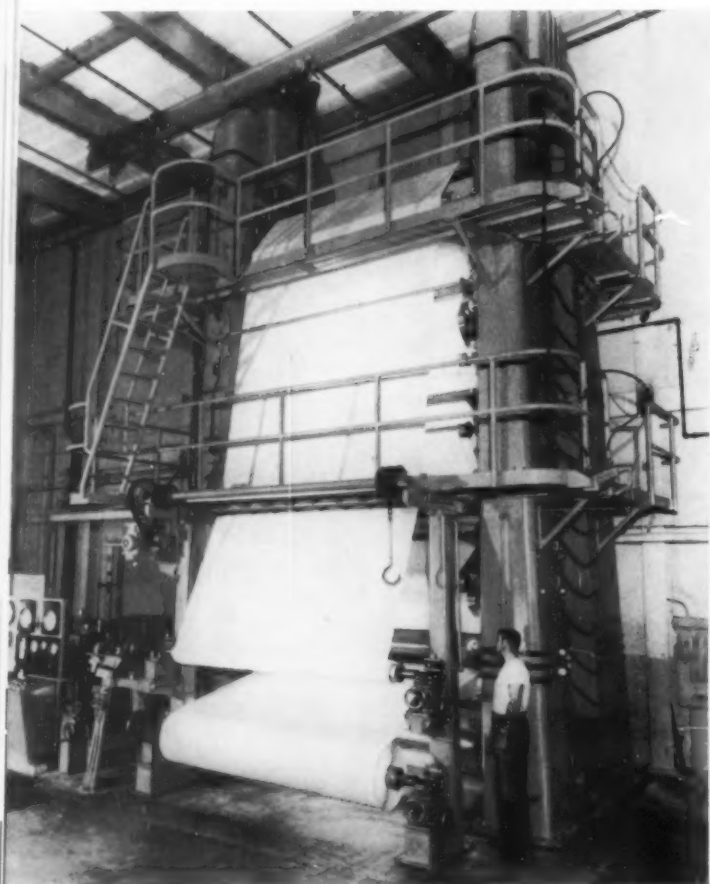
Final step in the assembly is to slide the accessory boxes into the spaces provided, where they serve as spreaders to protect the instrument from lateral pressure. The top flaps of the corrugated box are finally sealed with a 3-in. rayon reinforced tape on all of the interlocking elements.

SUPPLIES AND SERVICES: Inserts fabricated and assembled by Flexline Products Co., 4143 Sheila St., Los Angeles 23, from fibreboard supplied by The Celotex Corp., 120 S. La Salle St., Chicago 3. Set-up boxes by Jule V. Sparks, Paramount, Calif. Corrugated carton by Container Corp. of America, 38 S. Dearborn St., Chicago 3.



PAPER WRAPS

A veteran industry that pioneered outstanding advances in packaging and still dominates the field of low-cost wraps capitalizes on competing materials by building many of their characteristics into its product



110-in. widths of glassine for paper wraps and other packaging purposes are produced on this new supercalender, just installed in the Midwest and said to be the world's largest. Such equipment converts greaseproof paper into glassine by increasing the base-stock's gloss, density, transparency and greaseproofness by moistening and heat pressing.

Biggest tonnage output of the paper-wrap industry is in waxed paper and the biggest user of these traditional wraps is the bread-baking industry. These jumbo rolls have just emerged from the coater and are waiting to go on to the slitter.

PHOTO POLLOCK PAPER



PHOTO NICOLET PAPER

The paper-wrap industry, producing what is probably the lowest-priced protective packaging of its kind, faces a period ahead as challenging as any experienced in its more than half century of service to packaging. For, despite the inherent economy and decades of acceptance of this key form of packaging, the surge of competing wraps made from non-paper materials, particularly plastic, and the constant improvement in their printability, high-speed machine handling and cost now demand from paper-wrap suppliers the smart, inventive and aggressive planning and selling common in any volatile marketing situation.

Yet there is obvious optimism among paper-wrap converters. This is reflected in their announced or recently completed plant modernizations and expansions. Even more important is the evidence of a

steady product improvement which capitalizes on the proved packaging values of paper but at the same time energetically meets the competition and satisfies customer requirements by supplying new paper wraps that often combine in one product the advantages of both paper and the same new materials that are giving paper the fight of its business life.

By using paper's vaunted economy and flexibility as a base, converters are stepping up the creation of new types of paper wraps by building in additional product-protection advantages and package-fabrication features that may equal or surpass the appeal of newer wrap materials still lacking paper's low cost, machinability and printability. The fact that paper in combination with its new competitors can offer desirable packaging characteristics they



still lack is best demonstrated by one of the most recent advances—paper coated with extruded polyethylene. This step permits the use of a thin film that alone and unsupported by paper would be relatively costly and hard to handle, if not impractical altogether.

"Paper wraps" is a broad term. For the purposes of this article, it covers protective wraps engineered for specific packaging duties, although there is high tonnage in bleached and unbleached papers that are used for loose wraps or industrial wraps that often have relatively few protective properties.

In general, this survey reports on that section of the converting industry which manufactures wraps made of these principal protective papers:

Greaseproof, a smooth, dense, opaque or translucent paper made from chemical wood pulp. It is produced by a beating and hydration process that renders it resistant to grease, fat and oil. Eighty per cent of this paper is made into glassine.

Glassine, which is greaseproof paper that has been moistened and run over huge heated presses (supercalenders) that increase the paper's gloss, density and greaseproofness and impart a high degree of transparency.

Vegetable parchment, produced from sulphuric acid-treated cellulose. It is odorless and tasteless and generally greaseproof, has great wet strength and a wide range of clarity. It can be produced to meet varying specifications as to greaseproofness, weight, color and finish.

Waxed paper is greaseproof, glassine, vegetable

parchment, sulphite or kraft papers that have been impregnated, coated or otherwise treated with waxes or wax-like materials. Depending on the base paper, the treatment and the amount and kind of wax, various waxed papers differ in color, opacity, printability, sealability, protection and performance.

Thousands of packagers accept these paper-wrap materials as the best protective packaging for the money, particularly suited for low-profit items but useful in a variety of applications.

Through the years, the paper-wrap industry has come up with hundreds of improvements and modifications so that today a paper wrap can be created to provide a wide range of protective properties for both food and non-food products.

The biggest tonnage in the field is accounted for by waxed papers. In 1957, industry and government sources indicate, approximately 540 million lbs. of waxed papers were produced for packaging, valued at an estimated \$153 million. This represents an 11.9% increase from the 1954 tonnage. For packaging uses, about 96 million lbs. of glassine, greaseproof and vegetable-parchment papers were converted for wrapping butter, ice cream, margarine and innumerable other products. In addition, 160 million lbs. of these papers were produced in 1957 for unconverted wrapping purposes.

The industry

Representing about 130 paper-wrap manufacturers are the Waxed Paper Institute and its allied Waxed Paper Merchandising Council, the Glassine

Greaseproof paper, in which converters build resistance to grease, fat and oil through a beating and hydration process, is well suited for such irregularly shaped products as ham.



PHOTO GLASSINE & GREASEPROOF MPFS. ASSN.



Glassine suppliers are assured daily use of their product by millions of consumers because this paper is a traditional wrap for medical and hygienic items.

& Greaseproof Mfrs. Assn. and the Vegetable Parchment Mfrs. Assn.

Membership rolls of these associations reveal that most suppliers are concentrated in the East or Midwest, although there are many waxed-paper plants in the South and West. Among waxed-paper companies about a dozen are reported to do 90% of the business; 100 others serve small-volume needs. In the other paper-wrap groups a dozen companies make up the bulk of the business. The bigger companies have multi-plant operations to serve customers on a national basis.

The biggest single volume of business goes into bread wraps. An estimated 75% to 80% of white bread is wrapped in waxed papers. Because white bread accounts for perhaps 85% of the total bread market, waxed papers may be found on about 28 million of the 41 million lbs. of bread baked daily.

In addition, transparent bread wraps often use an inner waxed-paper band which, in the last two years, has tended to become more common as more stress is put on brand identity and appetite appeal. Also, these paper bands are being made increasingly wider for better display. In 1957 the bread-baking industry accounted for around 235 million lbs. of waxed paper, with a total worth of almost \$71 million.

The package

History is on the side of paper wraps. Among packaging's pioneers were the first boilable, the first transparent and the first heat-sealable flexible wraps—all made of paper.

Vegetable parchment, the earliest boilable paper, was first made in this country in 1885, although the British had been manufacturing it a quarter of a century before. In the U.S. its earliest use was protecting tub butter.

Waxed paper, particularly glassine, early approached transparency and it was heat sealable. Lacquer-coated glassine, boasting transparency and heat sealability, was introduced at the first Packaging Show 27 years ago.

Perhaps the country's first waxed paper was made in 1877 by a New York candle maker who dipped paper into tallow to wrap fish and carry it home. Subsequently, he went into the business of commercially producing such a sheet and one of his first customers was Huyler Candy Stores of New York for wrapping candy in waxed paper.

String-tied waxed paper around bread first appeared in the 1890s. Heat-sealing waxed paper came in 1911, followed shortly by converted waxed papers. By 1920 Cracker Jack and Wrigley's Chewing Gum were sales successes due partly to their freshness in glassine and waxed paper wraps.

Wraps can be used for protection, merchandising



Vegetable parchment manufacturers have a major market for this grease-resistant paper in wraps for butter and similar food products. This four-color holiday design against the white snowflake background demonstrates its printability.

appeal or both. Depending on product shape and package function, packagers may choose from among three basic types: single wrap, including twist, which is the product's only protection at retail; overwrap, which sheathes another package, such as a carton, and unit wrap, an inner protection also used with another package. Graham crackers, for instance, use both an inner wrap and an overwrap. Only a small portion of packagers use the twist technique, most of this going into the confection field for "kisses" and similar candies.

Among the big users of paper wraps are manufacturers of cereal, bread, candy, chewing gum, biscuits, ham, crackers, butter, soap, tobacco and frozen foods.

For such customers a supplier can provide papers or combinations of materials that are opaque or translucent, heat sealable or not, dry or waxed, in one or more plies, embossed or smooth and in almost any color needed. The microclimatology of the package—its characteristics related to the biological and physical properties of the product inside—determines the type and weight of paper to be used.

Among the qualities that can be built into paper wraps are grease resistance, high wet strength, opacity, water-vaporproofness, mold resistance, flame resistance, infestation resistance, high impact and tear strength, and corrosion preventiveness. Papers may also have release properties, scuff resistance, high gloss, blocking resistance and heat sealability. And they can be non-toxic, odorless, tasteless and have specific pH values.

Protective coatings to help impart some of these qualities can be grouped under four types: (1) hot melts, such as microcrystalline waxes and paraffin waxes; (2) solvent coatings, such film-forming resins as ethyl cellulose and polyvinyls; (3) emulsion coatings, including rubber latices and resins in aqueous emulsions, and (4) such extrusion coatings as polyethylene. [Continued on page 196]

BLACK BEAUTY



COLOR PLATES CHICAGO CARTON CO. AND PONTIAC ENGRAVING & ELECTROTYPE CO.

Special flavor in Beatrice Foods' line of ice creams and sherbets, this Triple Fruit Sherbet packed in a striking color-on-black carton is the current item in the company's bi-monthly special-flavor promotions.

A dominantly black special sherbet carton with sharply contrasting flavor colors is the highlight of an over-all package redesign by Beatrice Foods Co., Chicago, for its ice-cream, sherbet and milk containers. Although this striking color treatment is a stopper because it is so startlingly different in a dairy-food line, it is merely one result of this company's basic marketing thinking that equates healthy sales with good packaging.

Like many progressive food companies that realize the importance of the package's function as a salesman in self-selection marketing, Beatrice Foods sought an across-the-board improvement for its Meadow Gold ice-cream and milk-products cartons.

As a result, the over-all changes for its broad line of products include use of: a simplified brand cartouche, differentiating background colors and retention of its stylized "Meadow Gold girl."

On all packages the rather ornate Meadow Gold cartouche has been modernized to appeal to young buyers while keeping the same basic design to identify it for long-standing customers.

For its ice-cream and sherbet packages, the company is using two approaches. One is geared to its hard-hitting, bi-monthly, special-flavor promotions; the other, to meet the year-round marketing demands required for promoting its basic line of ice-cream and sherbet products.

For the specials, the obvious question was: How can Meadow Gold achieve maximum package impact in a short span of two months? Answer: Use the same artwork for the package design and in all advertising and point-of-sale display.

While this technique has been used in limited ways by a few packagers in the past, these Meadow Gold packages may be the first to integrate so completely both package design and advertising art on the basis of a year's planned strategy.

The promotion of its Rancho Pecan flavor typically illustrates Meadow Gold's planning for the specials. This year the company is placing heavy emphasis on outdoor advertising, so perhaps the consumer's first exposure to Rancho Pecan was a four-color billboard showing a large dish of the

Striking color for a dairy-food container is a reflection of Beatrice Foods' complete package redesign to increase consumer recognition of its line in all promotion and at point of purchase



Old-fashioned touch is characteristic of Meadow Gold's new standard carton that packages the bulk of its ice cream. New package (right) features soft-focus photography of old-time ice-cream-parlor setting against an identifying color background that is changed for each flavor.

ice cream in front of a scenic background depicting a Western sunset in rich browns and yellows. Logo-type and product name are the only other design elements appearing in the simple layout.

The same layout is used in television commercials, newspaper ads and point-of-purchase display material. And finally, the same artwork became the basis for the carton design itself.

Roy I. Ricksham, director of sales and advertising for Beatrice Foods, explains that instead of merely picturing the package in its advertising of bi-monthly specials, the company seeks to utilize the package as a repeat message in a series of concentrated visual impressions on the consumer.

Has the campaign been a success so far? Yes. Ice-cream sales during the new integrated advertising-packaging program are reported to be from 10 to 14 times greater than similar previous promotions undertaken by the company.

The current Triple Fruit Sherbet promotion keyed to the black carton is expected to equal the success of previous Meadow Gold specials this year.

The carton's unusual black background offers effective contrast for the colors and pictorial illustration of the three sherbet flavors and for the reverse type which also appears in color.

With this predominantly black sherbet carton, Meadow Gold may have come full cycle in carton design because a year ago its standard ice-cream cartons used a white background.

The company's second approach to carton design

Plastic containers also bear new designs that carry out motifs of revamped standard cartons.





TELEVISION COMMERCIAL



POINT-OF-SALE DISPLAY



NEWSPAPER ADS



OUTDOOR POSTERS

Maximum impact for the promotion of specials is achieved by using the same art for the carton and for all supporting advertising.

is applied to new standard cartons that package the bulk of its ice-cream business.

In store display cases, the company found, the buyer could not instantly differentiate among the flavors in its old white cartons. Under marketing conditions that require almost split-second decisions by shoppers,* Meadow Gold saw that the white background on cartons was not accelerating its total sales effort.

The new design features high-key photography that uses soft focus except for a spoon dipping into a dish of ice cream which dominates the panel. A marble-top table, an old-fashioned glass candy jar and the shadow of a wire-back chair found in yesterday's ice-cream parlors are the secondary background elements. The total picture suggests quality by its connotation of old-time, hand packaging.

The same photo format is used for vanilla, chocolate, strawberry, neopolitan and sherbet, plus all multipurpose ice-cream cartons. For rapid store identification, the ice-cream and background colors are changed for each flavor.

The multipurpose carton is used to hold less-popular flavors that may total 100 during the year. Multipurpose cartons are imprinted with name of the particular flavor prior to packing.

In addition, Meadow Gold is redesigning the plastic tops for its polystyrene ice-cream containers, the tops of its liquid-tight paperboard canisters and the reverse-printed cellophane label for its fibre canisters with metal tops and bottoms.

The Meadow Gold company believes that it now offers more than 100 plants a considerably wider choice of packages than is offered by any other national ice-cream manufacturer.

As part of its over-all package revamping, Meadow Gold's gable-top milk-carton line has been redesigned for faster store identification. These cartons are used for milk, milk products and fruit-ades. The Meadow Gold girl appears on two sides and different colors are printed on gable tops to distinguish the various products. Also, a reverse of the cartouche is run on the gable for price marking where this is necessary, although it still appears as part of the integrated design of the carton even if the area is not price marked.

SUPPLIES AND SERVICES: *Cartons by Chicago Carton Co., 4200 S. Pulaski Ave., Chicago 32; Container Corp. of America, 38 S. Dearborn St., Chicago 3, and Fibre-board Paper Products Corp., 475 Brannan St., San Francisco 19. Plastic containers by Louisiana Plastics Co., Louisiana, Mo. Milk cartons by Sealright Co., Inc., Div., Oswego Falls Corp., Fulton, N.Y. Metal-end fibre cans by Sefton Fibre Can Co., 3275 Big Bend Blvd., St. Louis 17.*

* See "10 Seconds to Sell," MODERN PACKAGING, Dec., 1957, p. 91.

Polyethylene plus burlap

*Sears neatly combines the old and the new
in a duplex bag for root stock.*

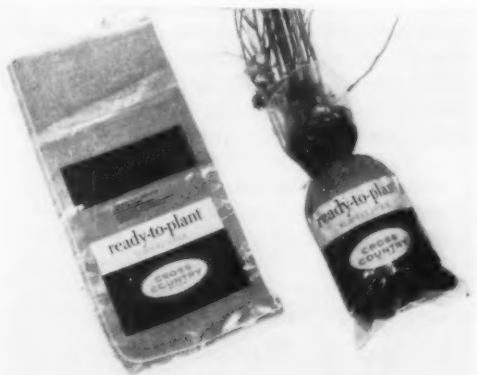
*Outer film carries sales message
and retains moisture, while burlap protects
the roots right into the ground*

The sales impact of a printed polyethylene bag is combined with the utility of traditional burlap in colorful new packaging created for Sears, Roebuck & Co.'s ready-to-plant nursery items. This illustrates both the possibilities in combining old and established packaging materials with such newer materials as plastic films and the ease with which such cumbersome and awkward merchandise as balled nursery stock can be attractively packaged for impulse selling and easy handling.

An outstanding pioneer in developing good packaging to promote the sale of plants and garden supplies, Sears is using this bag-within-a-bag so that the inner burlap, wrapped around the bottom of the plant and buried with it, continues its traditional job of protecting the hair-root system developed in the nursery. The package is delivered to Sears completely assembled, with the burlap bag inserted in the polyethylene bag.

Previous packages used only a plain paper wrap over the burlap. Plant instructions and identifica-

Three-color design has informative selling copy on front, instructions on back. In the store, tags and display signs identify specific plants.



Neatly bagged to protect both plant and handler, this package for ready-to-plant nursery stock has a burlap bag inside a printed polyethylene bag designed for impulse selling. The film retains moisture and the burlap, which is planted with the item, protects fine hair roots.

tion appeared on attached tags or stickers. The paper was protective, but had no display value.

In its place, the new package has a moisture-retaining outer polyethylene bag printed in dark green, white and orange for effective merchandising of Sears' Cross Country ready-to-plant stock. Copy on the front and back of the bag provides planting instructions. The design, opaque against the burlap, consists of horizontal color panels that carry a "ready-to-plant" inscription along with the brand name and the informational copy. Illustrated hang tags and display signs in the garden stores identify the specific plants.

The bag-in-bag construction provides a package that stimulates impulse sales and is functional too. The customer merely removes the polyethylene bag and tag, and plants the shrub—burlap bag and all.

In addition to flowering shrubs and similar plants, the company is also using the bag-in-bag technique for the packaging of its rose bushes.

SUPPLIES AND SERVICES: Bags by Chase Bag Co., 155 E. 44 St., New York 17.



Tiny metered aerosol

Ciro's Parfum Mist in a metered aerosol dispenser, small enough to carry in the purse and reportedly holding 250-300 measured applications of fragrance ($2\frac{1}{4}$ drams), opens up a whole new realm of possibilities for pressure packaging in the beauty business as well as the pharmaceutical field. Less than 3 in. long and $\frac{3}{4}$ in. in diameter, the decorative polished brass case gives the effect of machine-engraved gold. The stainless-steel inner cartridge is replaceable. A patented metering valve made of nylon and rubber controls the spray, releasing just enough for one application at a time. The miniature aerosol is presented in a gold-colored, foil-covered set-up box with inner die-cut platform. Ciro estimates that 30% of the perfume industry's fragrance sales today are in aerosol packages and the figure is rising. The new Parfum Mist aerosol is in addition to cologne aerosols Ciro has offered since 1955. *Aerosol container and valve by Risdon Mfg. Co., Naugatuck, Conn. Contract filling by Aerosol Techniques, Inc., 111 Silliman Ave., Bridgeport 5, Conn. Box by J. Landowne Co., Inc., 561 Grand Ave., Brooklyn 38. Design of box by Enid Edson, 412 E. 50 St., New York.*

DESIGN

New-size cigarette package in England



In England, too, apparently cigarette packaging is in a state of transition. A departure from the traditional English box of 50s is the new three-tier pack for Rothmans King-Size Filters, reportedly enjoying a 930% increase in sales since their introduction last year.

The new three-tier box of 50s, as distinct from the usual two, is planned for two advantages: a more practical size to fit comfortably in the pocket and a sturdier, more serviceable package. The approximate dimensions of the new box in inches are $3\frac{1}{2}$ by 5 by 1, a substantial reduction from the size formerly required, the company says.

A weight of board was selected to prevent buckling and bending of the box, which is printed in blue with white lettering and gold bands and crest. The boxes are individually cellophane overwrapped. They are packed for shipment in a foil-kraft laminate. Aluminum foil, embossed with Rothmans' trademark and attached by gum lines to sulphite tissue, is used for the interior packaging. The entire assembly is one that indicates the importance placed on efficient packaging to reflect the high quality of the product. *Foil by Venesta, Ltd., Vintry House, Queen St. Place, London, E.C. 4, England.*

Signaling the premium offer

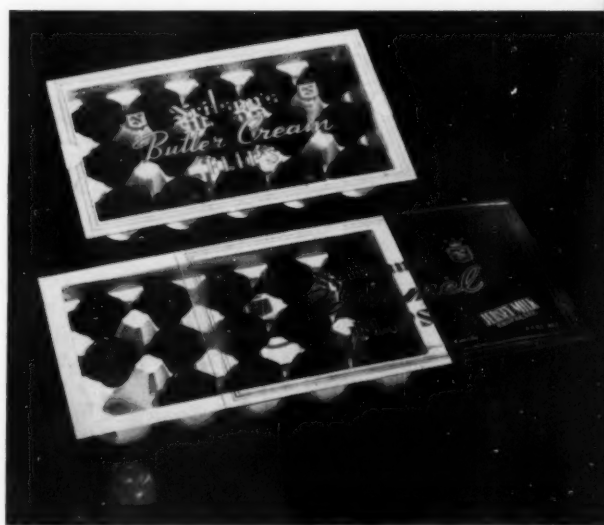
Two objectives were essential to Lever Bros., Ltd. in designing a package for a new detergent introduced in Canada. The package had to be a standout among the crowd of other detergents and it had to "shout" its chinaware premium offer louder than its competitors. Boldly, the designers made the premium offer one of the main features of the package face, accompanied by a display of matching pieces that can be obtained by continued use of the product on the back panels, plus further reminder of the premium by a repeated illustration of the chinaware on the end panel. Since the product, called "Extra," is a heavy-duty, all-purpose, blue-colored detergent, no delicate pastel treatment was considered. Bold reds and blues were selected to create the impression of "a good, strong washing powder." Triangular wedges give an effect of height and eye-pulling power. Line drawings of the chinaware were carefully executed to prevent "fill in" of the rose pattern. Gloss inks help protect surface from handling by wet hands. Copy is in two languages (English and French). Design by Jim Nash Associates, Inc., 527 Madison Ave., New York. Cartons by Hygrade Container Co. Ltd., Toronto.



HISTORIES

Chocolates in thermoformed polystyrene trays

In solving the problem of packaging quality chocolates in popular-priced units for supermarket selling, William Neilson, Ltd., Toronto, has developed a thermoformed polystyrene compartmented tray with transparent acetate slide cover that might start a new trend in confectionery packaging. The 0.020-in.-thick opaque white, non-toxic tray is formed with pillars in four locations to prevent crushing in stacking and shipment. The 0.0075 acetate slide-on cover provides product visibility, while two-color silk-screen printing on the acetate assures brand and product identity. The cover is secured by pressure-sensitive tabs that may also be used as price spots. The package reportedly represents outstanding economies and labor savings, since the need of paper cups or dividers is eliminated and the trays can be filled right from the chocolate-making machine in half the time required for conventional boxing. For the consumer, the tray makes an attractive serving unit and a "silent package" for theater munchers. Thermoformed package by American Paper Box Co., Ltd., Montreal and Toronto, using Dow polystyrene and Celanese acetate sheeting. Pressure-sensitive tabs by Avery Adhesive Label Corp. (Canada), Toronto.



Polystyrene films in use

Orientation process has licked most of the long-standing problems and brought sparkling, low-cost, 1-mil film immediate acceptance in window cartons, envelopes and wraps



ALL PHOTOS BY HOW CHEMICAL CO.

Logical use of new, high-clarity polystyrene film is in windows for bacon packages. At least seven packers are now using the material in this application because it combines low cost with dimensional stability and sturdy resistance to grease, salt and variations in temperature.

Polystyrene film, 20 years on the way, has at last made its entry into the packaging field. A dozen current applications of this crystal-clear film as a bag, wrap and window material demonstrate improved and controlled properties which, with the low cost inherent in this plastic, promise to make it a serious contender in certain areas.

The brittle nature of the early polystyrene film has been transformed by a process of controlled biaxial orientation.¹ Today's commercial 1-mil film has the feel and handling qualities of cellophane—neither too hard nor too soft. It has the sparkle and

clarity of acetate and the dimensional stability of polyester film. In cost it already challenges the lowest of all, polyethylene.

It has one serious drawback: It is not, at present, truly heat sealable. This was true of polyester film when it was introduced and the problem may be licked in the same way—by the addition of a suitable coating—although in this case the added cost may be more of a commercial handicap.

The new polystyrene film does not have the great tensile strength of polyester and saran films, but it falls in the good middle range of cellophane and acetate films and is superior to polyethylene. Its burst strength is excellent. It is rated "high" in gas

¹For a technical report on this process and its effect, see "Polystyrene Film," p. 154, this issue.



Not heat sealable, polystyrene film is readily attached by glue in regular window-carton machines. Highly permeable, it is valued here for its sparkling transparency. Cereals inside are protected by individual moistureproof bags.

permeability, as is polyethylene, and with a rating of 6.2 is highest of all packaging films in water-vapor permeability with the notable exception of acetate, which is rated at 100, and uncoated cellophane, rated at 160 to 180.²

Using no plasticizer, the new film is completely non-toxic, odorless and tasteless. This immediately suggests applications in contact with food. Yet high gas and water-vapor permeability (which may also be controlled by a coating) presently make its food

²Properties of polystyrene film given here are those reported for the Dow Chemical Co.'s "Trycite," recently introduced as an unsupported film for general packaging purposes, and The Plax Corp.'s "Polyflex," previously used as a laminant. Comparisons with other packaging films are based on latest manufacturers' data made available to the MODERN PACKAGING Encyclopedia Issue.

applications highly selective and as long as heat sealing remains a problem it is limited mechanically to machines using glue or solvent sealants.

Thus, for the moment, applications are found in window cartons for food and other products in pouches and envelopes and in overwraps, using hand or semi-automatic methods.

To find out what packagers think of this new film and how they assess its limitations as well as its general properties and advantages, MODERN PACKAGING has conducted a survey of present users. The product applications are diverse, ranging from bacon and breakfast cereals to hosiery and paper products, and the survey replies, on which this article is based, have been candid. In general, packagers have picked this film for their purposes because of its economy, clarity and stability.

Window cartons

Outstanding among present applications of the new polystyrene film is its use as a window material in bacon cartons, where most of its advantageous properties are demonstrated. The inexpensive, dimensionally stable film is impervious to animal fats and salts, and can withstand the wide variations in humidity and temperature that occur in refrigerated storage. These two factors, plus its ease of moisture transfer, prevent wrinkling and clouding of the film window and thus preserve the plastic's sparkling clarity which enhances the product inside. Present

HOW POLYSTYRENE COMPARES WITH OTHER FILMS*

| All data based on 1-mil thickness | YIELD sq. in./lb. | COST 1,000 sq. in. | TENSILE lbs./sq. in. | BURST (Mullen) | TEAR (Elmendorf) | SEAL- ABILITY | WVPT† | GAS PERME- ABILITY | DIMENSIONAL CHANGE at high R.H. |
|-----------------------------------|----------------------|-----------------------|-------------------------|-------------------|---------------------|--------------------|------------|--------------------------|---------------------------------------|
| BIORIENTED POLYSTYRENE | 25,400 to 26,000 | 2.4¢ | 9,000 to 10,000 | 35 to 45 | 25 | Solvent or glue | 6.2 | High | None |
| POLYESTER | 20,000 to 24,300 | 10.5¢ to 17.9¢ | 10,000 to 25,000 | 32 to 45 | 13 to 18 | Heat or solvent | 0.1 to 1.8 | Very low | None |
| CELLOPHANE (MSAT) | 19,500 | 3.5¢ | 7,000 to 16,000 | ... | 2 to 10 | Heat or glue | 0.2 to 1.0 | Variable | 3 to 5% |
| ACETATE | 22,000 | 3.4¢ to 4.2¢ | 7,000 to 12,000 | 50 to 85 | 2 to 15 | Glue or heat | 100 | Medium | 0.6% |
| PLIOFILM | 33,000 | 3.3¢ | 5,500 to 7,500 | ... | 60 to 1,600 | Heat | 0.5 to 15 | Variable | None |
| POLYETHYLENE | 30,000 to 38,000 | 1.9¢ to 2.2¢ | 1,350 to 2,500 | 48 | 150 to 350 | Heat | 1.2 | High | None |
| SARAN | 16,300 | 6.4¢ | 7,000 to 15,000 | 35 | 10 to 20 | Heat | 0.1 to 0.3 | Very low | None |

*Based on manufacturers' properties reports.

†Water-vapor permeability in gms./100 sq. in./24 hr. at 95% R. H. and 90 deg. F.

A super-clear, long-lived window material



Early users of the new, low-cost, polystyrene film include these three paper and household products, for which moisture protection is not a requirement. The window film is conventionally applied by glue in carton-making machines and is particularly suitable for this packaging application because it stands up, without a sign of drawing or wrinkling, over a long shelf-life period.

users of this package in the bacon field include Swift & Co., Geo. A. Hormel & Co., The Rath Packing Co., Lykes Bros., Inc., Clougherty Packing Co., Houston Packing Co. and The Val Decker Packing Co.

Dimensional stability and low cost are leading reasons for the film's further use as a window in cartons for paper products marketed by Johnson & Johnson, Erving Paper Mills, American Lace Paper Co. and Blue Ribbon Co., and for the windowed Pick-A-Pack carton containing a bagged assortment of General Mills cereals.

In all of these cases, the cartons serve merely as carrier packages. Permeability is not a factor in the packaging decision, since the product is either unaffected by moisture or, as in the case of the cereals, inner wrapped with a barrier material.

Because window films are customarily applied in high-speed carton-making machinery by glue tacking, there is no production problem here.

Envelopes and pouches

Second in importance at the moment are envelope and pouch packages. Five are presently on the market. One, a pouch for No-Seam nylon hosiery by John H. Guenther Hosiery Co., shows the extent to which this film can enhance fine printing in its use of extremely fine shading in subtle blue and gold tones. Two other hosiery manufacturers, Charles H. Bacon Co. and G. C. Murphy Co., are also using polystyrene pouches.

Another pouch package, printed in bright red and black, serves as a striking container for Heart of the South handkerchiefs, sold by Mark's Handker-

chief Co. in drug-store card displays. The third application is as an envelope for holiday seals and tags made by Dennison Mfg. Co.

In all three of these examples, polystyrene is valued for its sparkle, clarity and long life without shrinking or wrinkling.

The first two examples are sealed by solvent. While Dennison notes that it is difficult to run the material on many automatic packaging machines, this company is using a combination of solvent, crimp and heat-sealing techniques on a standard wrapping machine.³ Because of this success, Dennison plans to use the film on various other gift-packaging items where the film's long storage life, brilliance and low cost give it an advantage.

Wraps

The third area of application—wraps—has not been extensively explored as yet, although there are three examples on the market. American Lace Paper Co. is using the film to cover rolls of gift-wrap paper. The longitudinal seams on these rolls are solvent sealed and the ends are simply tucked in. Here, the film adds exceptional sparkle to an inside, wrap-around label.

On flat packs of gift paper and on Walt Disney jig-saw puzzles, packaged by Whitman Publishing Co., the film is applied as a wrap on the front of the package and glued to a plain paper backing. The gift-wrap paper has a heat-seal label applied directly to the film. Here again, brilliance of the film enhances the product within.

An obvious field for exploitation is fresh produce.

³Hudson-Sharp machine.

The "breathable" nature of the film would allow necessary respiration of the produce and its high dimensional stability would prevent wrinkling under adverse moisture conditions. Although the oriented polystyrene material does tend to fog with such products, work is well advanced on coatings and surface treatments that may eliminate this condition.

Other coatings are in the works to improve the heat sealability of the material and to enhance barrier properties. Because of the film's low initial cost, it is likely to be a very suitable substrate for laminations or coatings and thus give rise to a new series of film materials with wide packaging properties and potentials.

Metallizing is one promising means of improving properties. The film is easily metallized and this has been done experimentally. In addition to its decorative value, a metallized coating reportedly lowers the gas transmission rate by a factor of eight to 18, depending upon the gas, and is said to appreciably lower the WVT from six to 12 times.

Basic properties

General packaging properties and characteristics of the new biaxially oriented polystyrene film, in comparison with other commonly used packaging films, are summarized in the chart at the bottom of page 123. Several points are worthy of special comment.⁴

Yield and price. Because polystyrene is low in specific gravity (1.05), it has a high area yield per pound. Although price per pound is approximately 60 cents, it yields 25,400 to 26,000 sq. in. of 1-mil film per pound, making the cost to packagers (from current quotations) about 2.4 cents per 1,000 sq. in. Only polyethylene and Pliofilm show higher yields per pound and only polyethylene is lower (by a slight margin) in cost per 1,000 sq. in.

Strength. In general, the strengths needed for packaging purposes are comparable with those of cellophane and acetate. Physical strength is not appreciably altered by low temperatures.

Resistance. The film resists attack by all common chemicals except some strong oxidizing acids and organic solvents. Resistance to greases and oils is very high and water absorption is nil. The bi-oriented film does not embrittle with age indoors, but its outdoor life in sunlight is limited.

Clarity. The film is rated as the practical equal or superior of any other transparent packaging material in clarity and surface sparkle. It transmits about 92% of visible light.

Permeability. The uncoated film transmits water vapor at a rate roughly six times that of other so-called moistureproof films. It offers little resistance

⁴Data reported for Dow's "Trycite" and Plax's "Polyflex" films.



Fine printing qualities in pouch and envelope packages lend look of luxury at low cost to such mass products as handkerchiefs and Christmas seals. Hard film surface makes subtle tones, as in stocking envelope, easy to reproduce.

to transmission of such common gases as oxygen and carbon dioxide.

Sealability. Because of its strong cross-orientation, the film tends to shrink at heat-sealing temperatures and pull away from the heating bar. This breakdown in orientation leaves the seal area weak. However, the film is readily sealed with either a solvent (trichloroethane) or adhesives of the latex or resin-emulsion types.

Printability. The film is readily printed by conventional methods, such as flexographic, rotogravure and letterpress; also by offset or silk screen. Because of surface gloss, it is very effective with reverse-printed designs [Continued on page 205]

Wrapping applications of clear film give beautiful display to the product. To avoid tricky sealing problems, these wrappers cover only the fronts of the flat packs, are glue sealed to plain paper backing. Roll packages are solvent sealed lengthwise and tucked in at ends.

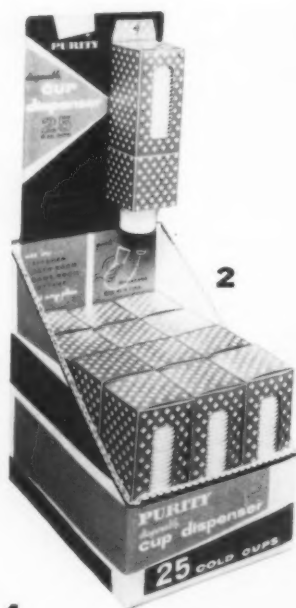


1



Packaging

Pageant



2

3



5



1 By adopting colorful, carded polyester blister packs, the 52-year-old firm of S. S. Adams Co. has turned its vast line of jokes, tricks and puzzles into a family of novelties designed for quick-selling rack display. Rabbit-in-hat, court-jester and puzzle symbols distinguish the product groups. Design, Robert Zeidman Associates, New York. Printed cards, Fielding & Co., New York. "Mylar" film, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

2 Another example of the "non-commercial" look in packaging is this disposable dispensing carton for Sutherland Paper Co.'s Purity paper cups. Printed in gold color with a white-and-blue pattern, the hang-up paper-board dispenser has product data "hidden" on its back and bottom panels. A transparent cellulose acetate window permits visual inventory of cup supply. To promote impulse sales, the company offers retailers corrugated counter merchandisers featuring one dispenser ready for use. Merchandiser, American Box Board Co., Grand Rapids, Mich.

3 To introduce Dual Filter Tareyton cigarettes, American Tobacco has adopted a completely new package design for the product. Twin vertical red stripes on a white background symbolize the new product feature. The redesigned logo is printed in gray and a new trade mark—two tobacco leaves supporting a gold crown—aims identity. Design, Lippincott & Margulies, New York.

4 A dispenser carton with a die-cut, flip-open section in its top panel is used by Emergency Kit Corp. for disposable polyethylene gloves. After removal of a glove from the three-color carton, the cut-out portion may be snapped back into place to protect remaining contents. Carton, Milprint, Inc., Milwaukee.

5 Combining the necessary attributes of break resistance and product visibility a three-color-printed polyethylene bag is credited by The Bares Co. for the sales success of its Char-B-Bas, a white volcanic rock used as the bed for charcoal fires. Printed design on the 3-lb. bag features a cartoon of a chef against a flame-red background. Instruction copy is printed on the chef's "apron." Printed polyethylene bag, The Dobeckmun Co., Cleveland.

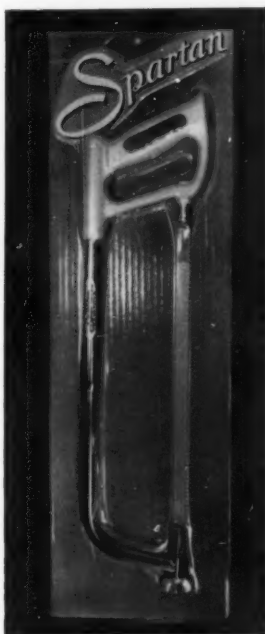


6 Applied color decorations—in Mexican, Pennsylvania Dutch and Colonial motifs—add premium appeal to glass jars for Lechleitner's Mallo-Wip marshmallow. Re-usable as freezer jars, they have red polyethylene snap-on caps. Jars, Continental Can Co., Hazel-Atlas Glass Div., Wheeling, W. Va. Caps, Buckeye Molding Co., Miamisburg, O. Labels, Calvert Lithographing Co., Detroit.



6

7 To merchandise hacksaws and blades as impulse items, Spartan Saw Works has adopted a heavy-duty skin package consisting of a polyethylene-polyester sheet and a corrugated backing board. The hang pack holds the heavy items in place until removed by the customer. Contract packager, Packaging Service, Inc., Holyoke, Mass., using Print-A-Tube's 520 P.O.M.V. film.



7

8 Dealer complaints of marred merchandise have decreased since adoption of 4-mil polyethylene envelopes, which are slipped over portable typewriters before placing them in leather carry cases, reports Smith-Corona. The protective, transparent covers also keep the machines clean while on display. Envelopes, Packaging Supply Co., Syracuse, N. Y., using Bakelite polyethylene.



8

9 Product data are confined strictly to the metal closures on these re-usable "label-less" glass goblets for Sea Snack Co.'s dessert toppings. The company feels that the absence of labels contributes to impulse appeal. The closures are lithographed with full product information. Jars and caps, Anchor Hocking Glass Corp., Lancaster, O.



9

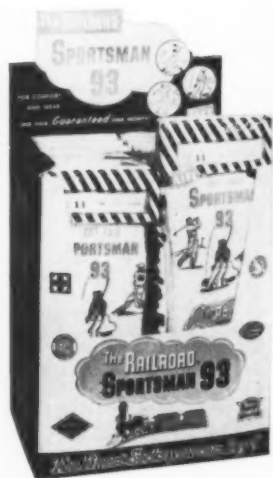
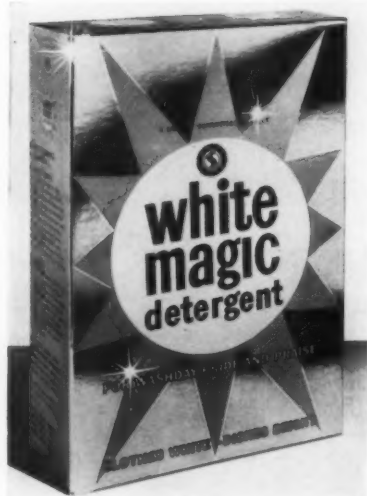
10 A swing to aerosols in the cosmetic field for dispensing powders may be indicated by the appearance of Millot's pressure package for "Poudre Glacée" in "Crepe de Chine" fragrance. Aerosols have been used for artificial snow and medicinal powders, but this is one of the first applications for a bath powder. Container, Crown Cork & Seal Co., Can Div., Philadelphia. Valve, Precision Valve Corp., Yonkers, N.Y. Contract packaging, Fluid Chemical Co., Newark.

11 Safeway Stores' introduction of White Magic detergent in a blue-colored, foil-laminated carton is further indication



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that aluminum may be set to sweep through the billion-dollar soap and detergent industry. (See "Foil Detergent Cartons . . . Another Trend?" MODERN PACKAGING, July, 1958, p. 90.) The carton has a white bull's-eye and pink sunburst design. Carton, Continental Can Co., Gair Boxboard & Folding Carton Div., New York.

12 Display economy is offered by the new shipping carton for Wm. G. Leininger Co.'s Railroad brand athletic socks, which converts into a compact counter merchandiser by punching out part of the perforated front panel and folding back the top. The shipper-display holds 12 pairs of socks in individual, printed-cellophane bags. Carton, bags and design, Lassiter Corp., New York.

13 How a standard package form can be converted economically into a sales-stimulating premium is suggested by the "brandless" metal can used by Jays Foods to introduce a potato-chip product. Re-usable as a waste basket or canister, the lithographed can has an interior coating of enamel, making it possible to use inexpensive blackplate in can manufacture, the company says. A tray closure fits inside the rim, which is curled outward for more pleasing appearance. A removable wrap-around paper label 4 in. wide retains the in-store brand identity of the regular can (left). Can, National Can Corp., Chicago. Label, Bellomo Press, Chicago.

14 Wildroot has introduced push-button Cream-Oil hair tonic in a nitrogen-charged pressure can with polyethylene dispenser. Finger pressure on the cap actuates a smooth, non-aerated product flow. Can, American Can Co., New York. Label, Dennison Mfg. Co., Framingham, Mass. Valve, Precision Valve Corp., Yonkers, N.Y.

15 Cott Beverage Corp. has adopted a family design for the paper labels on its bottled soft drinks, scrapping a former label line-up in which the company name was the only identifying factor. On all bottles, the Cott oval logo appears on a dome-shaped white panel. For easier identity, flavor data are printed in bold black letters and label background is color keyed to the tint of the beverage. Design and label, U. S. Printing & Lithograph Co., Cincinnati.

- 16** Four cosmetic items in small, easy-to-use collapsible metal tubes in a hinged polystyrene box make a handy travel or purse beauty kit for an introductory offer of Quality Cosmetics Corp.'s "Monique" hand, skin and hair-care line. Tubes, A. H. Wirz, Inc., Chester, Pa. Polystyrene case, Harkin Affiliates, Inc., New York. Paperboard sleeve, Kaybee Paper Box Co., Jersey City.



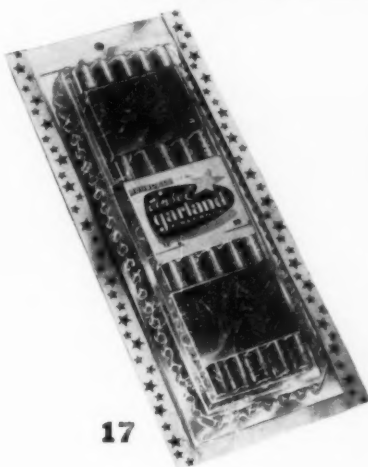
16

- 17** Ribbed shape of the thermoformed-acetate section of a carded hang-up package for Christmas tinsel effects packaging economy by providing adequate protective strength with a thinner-gauge sheet, says Paper Novelty Co. Adopted to give full visibility to the impulse item, the transparent cover is stapled to a colorful paperboard card. Printed card, Wm. W. Fitzhugh, Inc., Brooklyn. Blister, The Valley-National Corp., Milldale, Conn. Design, Graficon, Inc., New York.

Packaging

Pageant

- 18** New polyethylene-and-paperboard packages for Mort & Jack Isaacs' lace trimmings permit shoppers to touch as well as see the merchandise without soiling the contents. An end of the lace, which is wound around a stiffener card, projects from under the folded-over, stapled bag top. For re-order purposes, a perforated coded section of the bag top can be removed. Polyethylene bags, Foremost Corrugated Co., Union City, N.J. Printed bag tops and cards, H. S. Crocker Co., San Bruno, Calif.



17

- 19** Fram Corp. uses the transparency of polyethylene film as an integral part of package design on the new bag for its air-conditioner filter. A large unprinted area in the four-color illustration shows the product in reduced size. Another unprinted section, set side by side with a gray rectangle, indicates visually when to change the filter. Polyethylene bag, Continental Can Co., Shellmar-Betner Div., Mt. Vernon, O.



18

- 20** Fabergé has taken a forward step toward glamorizing the aerosol for dressing-table appeal. Its colorful plastic-coated glass aerosols for "Cologne Spray Extraordinaire" are offered either in handsome, deep-stamped metal outer cases or with elegantly designed, decorative, metalized polystyrene caps. All go to market elaborately boxed.



19



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Packaging Institute Forum

20th annual sessions in Chicago Oct. 13-15

will emphasize merchandising and overlap three-day exposition

of the Society of Industrial Packaging and Materials Handling Engineers

The Packaging Institute's new emphasis on the merchandising aspect of packaging will be evident next month at the organization's 20th Annual Forum in Chicago. A majority of the 70 speakers are preparing papers on some phase of package marketing, although there also will be a full quota of material for technical and production people.

Industrial packagers who will be in Chicago for the 13th annual exposition of the Society of Industrial Packaging and Materials Handling Engineers will have an opportunity to look into the entire sweep of packaging because PI's forum and SIPMHE's show will run on overlapping schedules. Forum registration will provide admission to the SIPMHE exposition.

PI will open its three-day sessions Monday, Oct. 13, at the Edgewater Beach Hotel; the SIPMHE three-day exposition bows in Tuesday, Oct. 14, at the Chicago Coliseum. Together they will sponsor a special technical program at the Coliseum the afternoon of Wednesday, Oct. 15. N. W. Postweiler, Riegel Paper Corp., is forum chairman.

Five awards are to be presented at the annual awards dinner on Tuesday: the PI Corporate Award and Professional Award for outstanding contributions to packaging technology, the TOC Award for the most informative technical paper at the forum, the National Starch Products-PI four-year scholar-

ship providing \$500 a year and MODERN PACKAGING's annual \$2,000 Fellowship Award at Michigan State University, which this year will be devoted to a teaching fellowship.

A highlight of PI's forum will be a closed-circuit television program starring West Virginia Pulp & Paper Co.'s new "Clupak" stretchable paper. Piped in by special line from the company's Charleston, S.C., mill, it will highlight Monday morning's session.

A keynote address on "Packaging . . . Food for Thought" at the opening luncheon Monday will precede three concurrent afternoon seminars on:

Package Marketing—D. A. Johnson, manager, advertising and sales promotion, Continental Can Co., chairman; "The Dynamic Packaging Industry," R. G. Fisher, vice president, marketing, Continental Can; "Coordinating Packaging with Design, Research and Production," Albert Kner, director, Design Laboratory, Container Corp. of America; "The Motivational Meaning of a Package," William Schlackman, director, packaging research, Institute for Motivational Research; "The Importance of Color in Packaging," Louis Cheskin, director, Color Research Institute; "Predicting Package Success," Dr. M. J. Helfgott, president, Lippincott & Margulies' Package Research Institute; "The Professional Package Design" [Continued on page 218]

Packaging Institute's 20th Annual Forum, Edgewater Beach Hotel, Chicago

Monday, Oct. 13

- 9 a.m.** Registration and continuous display of prize-winning packages in four association competitions.
- 10 a.m.** PI President's Address and business meeting
- 11 a.m.** Closed circuit TV (Clupak stretchable paper)
- 12:15 p.m.** Opening luncheon and keynote address
- 2 p.m.** Three concurrent seminars (see text)

Tuesday, Oct. 14

- 9 a.m.** Registration and display (continuous)
- 9:30 a.m.** Three concurrent seminars (see text)
- 12:15 p.m.** Luncheon and guest speaker
- 2 p.m.** Three concurrent seminars (see text)
- 6:30 p.m.** Awards reception and dinner

Wednesday, Oct. 15

- 9 a.m.** Registration and display (continuous)
- 9:30 a.m.** Three concurrent seminars (see text)
- 12:15 p.m.** Luncheon and guest speaker
- 2 p.m.** PI Technical Committees meet
- 2:30 p.m.** Joint special technical session with SIPMHE, Chicago Coliseum (see p. 207)

Enclosed entirely, this Drexel furniture is nevertheless easy of access through a tear strip which runs completely around base of the corrugated carton. Box lifts off in one piece. Inner protection is provided by wrapping with cellulose-filled material.



PHOTO CHICAGO PRINTED STRING CO.



PHOTO KATERY-CLARK CORP.

Furniture goes to corrugated

Tear-strip openings and ingenious methods of cushioning and suspending furniture in closed cartons help retailers by cutting back-of-store handling and delivery costs as much as 20%

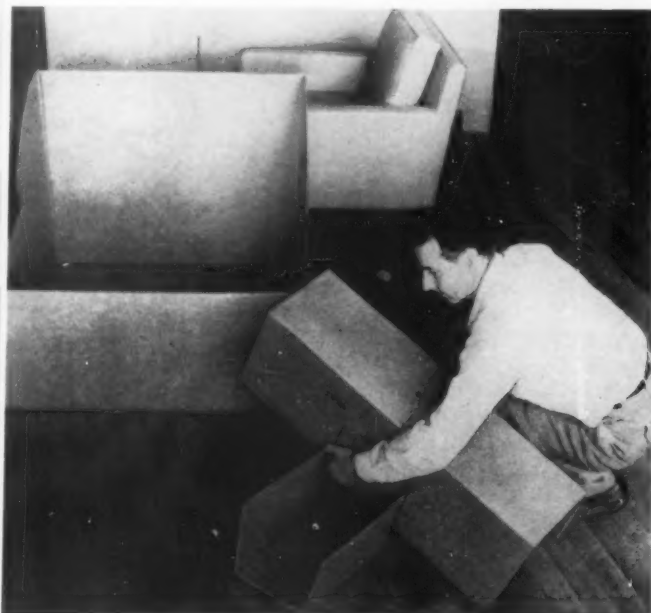
New packaging programs of the Drexel Furniture Co. and Marden Manufacturing, Inc., illustrate a trend in the furniture industry to eliminate unnecessary handling at the retail level.

"Factory-fresh" packaging that completely encloses furniture in corrugated shippers is the important factor in reducing back-of-store costs, reckoned as high as 20% of sales. Retailers are

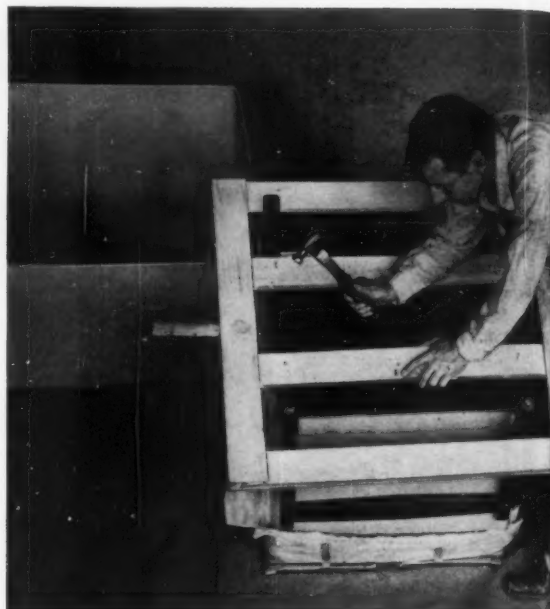
finding it more efficient to truck unopened Drexel and Marden cartons directly to customers, eliminating costs for unpacking, polishing, refinishing, repairing and wrapping prior to home delivery.

These two manufacturers are not the only companies, of course, going to this type of packaging. However, they are typical of about 30% of the furniture makers who are using packaging that is

Marden chairs ride in a saddle of corrugated



Saddle insert for chair carton consists of two slotted corrugated channels that interlock and form a base on which the chair rides.

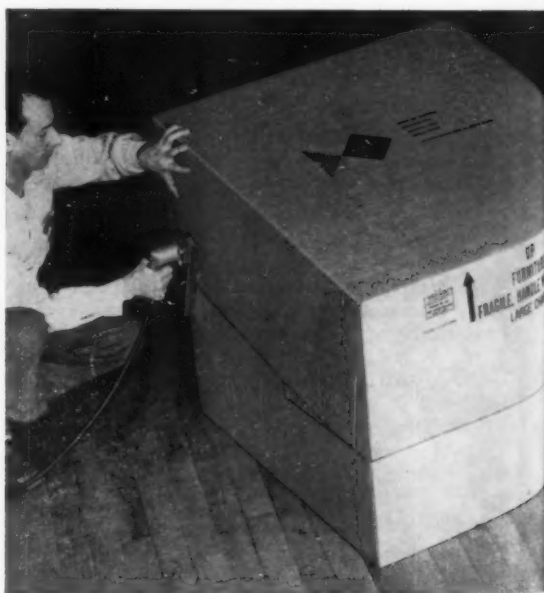


Wood-slat platform is nailed to base of chair, not legs, after cellulose wadding has been packed around carton contact points. Platform reaches all interior walls and gives ample clearance around chair when placed on the corrugated saddle.

PHOTOS: STONE CONTAINER CORP.



Riding the saddle, a Marden chair is ready for shipment after placement of the sloping telescope top which makes the carton itself adaptable to a variety of different chair sizes.



Slotted, sloping top is secured by stapling the carton flaps. Marden now uses just five sizes of these two-piece telescoping containers to handle its entire line of 94 different pieces of furniture.

good enough to stand up from factory to customer. Chicago's huge furniture and appliance dealer, Polk Bros., found that rework operations are 10 times greater when packaged furniture is opened before delivery than when the same furniture is delivered to the customer in its unopened factory package. In other words, Polk Bros. finds that routine pre-delivery inspection can be safely eliminated with good furniture, properly packed, and that removing furniture from the protection of its original pack subjects it to damage in the retailer's own store and delivery trucks.

Drexel

Drexel is using a combination of corrugated shippers with tear-tape opening and cellulose-filled protective wrapping to ship almost all of its furniture, which rides inside the carton and is not fastened to it in any way.

Drexel is promoting its improved packaging heavily with dealers. The company points out that its cartons save refinishing and repair expenses, that the inner cellulose wrapping tends to polish the furniture during shipping, while helping to eliminate scratches, and that disposal costs of packaging materials are lower than for crated goods.

Drexel's corrugated cartons, lighter than hard-to-handle crates, reduce shipping costs. They protect the furniture against entry of dust, moisture and damaging objects. In the warehouse they make more efficient use of storage space, since it is possible to stack furniture higher and more compactly than when it is partially wrapped.

The customer knows she is getting "factory fresh" Drexel furniture, not a floor sample, if it arrives at her home in its original package. Consequently, complaints are negligible.

At home, or in the warehouse, opening is easier, quicker and safer with the tear tape, which eliminates the use of often-damaging hawkbill knives.

Drexel is quick to point out that it does not have a miracle package and that the dealer must follow the "Up" arrows' directions to obtain maximum protection from the corrugated containers.

Marden

Another protective development, adopted by Marden Manufacturing, Inc., Chicago upholstered-furniture maker, suspends furniture inside a specially designed saddle and corrugated shipper.

Marden now uses just five two-piece telescope corrugated boxes to ship its entire line of 94 pieces, including sofas up to 108 in. long.

Each piece rides a saddle inside the corrugated package. The saddle consists of two interlocking channels of corrugated board which are fitted to-

gether at right angles to each other. This section fits snugly into the bottom of the telescope shipper and is deeper than the furniture legs. A wood-slat platform is nailed to the base of the furniture, not the legs, and rides on top of the saddle, affording the furniture clearance on all sides of the box.

The top piece is sloped, running from the back of the chair to the front of the arms. This flexible top makes it possible to use the same box on many different chairs, since closure flaps can be stapled to varying positions to fit several chair heights.

Backs of arms are padded with cellulose wadding before the package is sealed with two bands of steel strapping. The completed package prevents shifting and abrasion of the furniture. The chair can be completely unpackaged in about two minutes.

The new Marden container replaces wood-cleated corrugated boxes with wood runners nailed to the bottom of the furniture legs. While damage claims were not out of line with industry experience in the old package, they have been virtually eliminated with the new carton, according to the company. And the company has benefitted by a saving in packing labor amounting to 33%.

SUPPLIES AND SERVICES: *Drexel corrugated containers by National Container Corp., subsidiary of Owens-Illinois Glass Co., 405 Lexington Ave., New York 23; The Mengel Co., Corrugated Box Div., Louisville 10, Ky., and Tri-State Container Corp., Elizabethton, Tenn. Drexel's tear tapes by Chicago Printed String Co., 2300 Logan Blvd., Chicago 47. Marden corrugated containers by Stone Container Corp., 4200 W. 42 Pl., Chicago 32; "Kimpak" cellulose cushioning materials by Kimberly-Clark Corp., Neenah, Wis.*

Efficient warehousing with cartoned furniture contrasts with old method in which partly wrapped tables could be stacked no more than two high and were exposed to damage. Furniture retailers' back-of-store costs run up to 20% of sales.

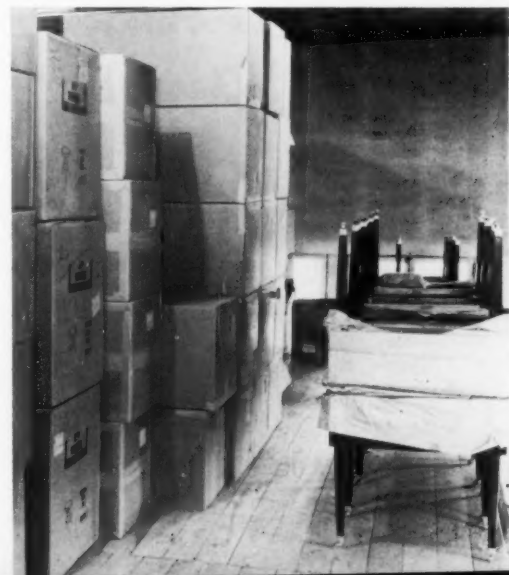


PHOTO: STONE CONTAINER CORP.

OWENS-ILLINOIS ASSURES YOU A COMPLETE PACKAGING APPROACH



Co-ordinated Research

Pure research into fabrication of glass, packaging research into processing and handling methods in customer plants, market research into consumer attitudes. All add up to greater packaging value.



Engineered Design

At Owens-Illinois, your package's *three* needs are taken into account: 1) Considerations of its function in the retail store, 2) its operating efficiency, and 3) its consumer utility.



The Right Container

Versatility of facilities and talents make O-I your best source of supply. In container development—beauty, utility, tradition are blended in the right proportions for your product's needs.



The Right Closure

Through long and continuing research O-I has developed the most advanced metal and plastic closures. Helping you choose the right closure is another function of O-I's packaging service.



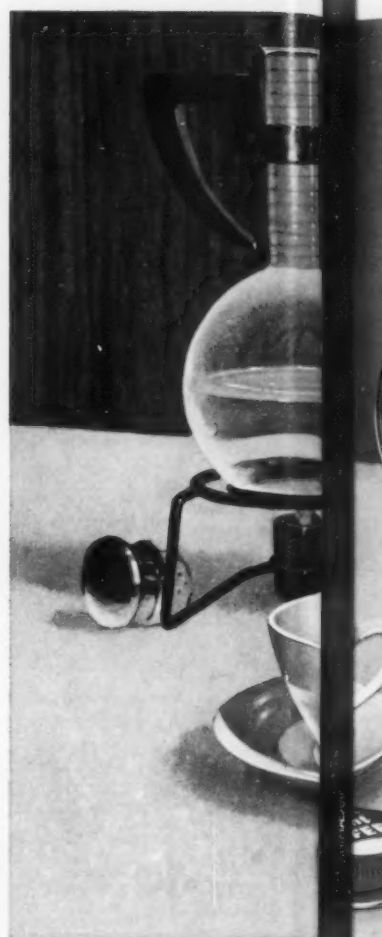
Needed Fitments

O-I specialists are keenly aware of sales benefits derived from plastic shaker and pour-out fitments which are not "gadgets" but which increase consumer satisfaction with your product.



Merchandising Cartons

Modern cartons developed to serve you efficiently in the retail store and warehouse . . . as well as on your own filling line and in transit. This is the new openized carton with easy-open flaps.





Easy to serve from, easy to reseal for storage, Duraglas Containers are convenience packages for instant coffee... perfect for any table setting!

At point of sale and with every use ... Duraglas Containers help sell your Instant Coffee

On the market shelf the right container often affects impulse buying—at home, the convenience and taste-protection of the container help to build repeat and continued sales of your instant coffee.

Duraglas Containers for your instant coffee give this double-selling action in the store and home. The Owens-Illinois *complete* packaging service as-

ures you of the best container, taste-protective and tamper-proof Tacseal for handy and accurate measurement, colorful, tight-sealing closure... plus eye-catching label designs, sturdy merchandising cartons displaying your sales message.

Call your nearest Owens-Illinois branch office for information.

DURAGLAS CONTAINERS
AN **❶** PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO



Resistance to temperature extremes enables new polyethylene-coated paper to be used for heat-and-eat frozen foods. Single-portion pouched peas can be dropped into boiling water for eight to 10 minutes without sloughing or delamination of container, which withstands freezer storage equally well. Plump peas (lower photo) show no evidence of either freezer dehydration or water soaking after storage and re-heating in hot water. The unit pack is easily torn open for serving. Five different frozen vegetables are currently being packed for the institutional trade by East Coast Marketers.

Heat-and-eat in paper

*A boil-resistant polyethylene coating
on economical pouch stock
solves cost and production problems
and suggests mass marketing
of frozen foods in portion packs*

Boil-in-the-bag foods are significantly nearer mass marketing with the introduction of pre-cooked frozen vegetables packaged in individual portions in an economical, new polyethylene-coated paper pouch. Launched by East Coast Marketers, Inc., Salisbury, Md., and aimed initially at the institutional trade, the new items may soon move on into consumer distribution and offer increased convenience in competition with conventionally packaged frozen foods.

This first commercial application of polyethylene-coated paper in packages requiring resistance to boiling water is reported to cost about one-fifth as much as comparable film pouches made of such boilable material as laminated polyethylene-polyester. The secret is in the resin—a medium-density polyethylene with good resistance both to heat and to the transmission of water vapor. The base paper



merely supports the plastic barrier material, but the combination has solved a critical sealing problem.

The five vegetables currently packed—peas, green beans, whole kernel corn, lima beans and mixed vegetables—are in marked contrast to the gourmet-type foods previously marketed in portion-controlled containers. Named "V for 1," these packaged products are said to represent the first attempt to launch conventional frozen vegetables as a consumer unit

in convenient heat-and-eat containers. The user simply drops the unopened pouch of pre-seasoned vegetables in boiling water and eight to 10 minutes later serves the contents of the disposable container.

Because these foods are completely pre-seasoned and pre-cooked—as opposed to the mere blanching of familiar frozen vegetables—they need only warming. Thus institutional cooks can prepare the exact amount needed without waste and with a minimum loss of flavor and firm texture.

With low cost a prime requisite in institutional packaging, the use of polyethylene was indicated from the start. But it takes an impervious package to prevent (1) dehydration during freezer storage, (2) permeation of grease from a pat of butter packaged with the vegetables and (3) leaching during the hot-water dip in the final preparation. Because of mechanical limitations in this company's present packaging equipment and the inherent thermoplastic properties of polyethylene, perfect seals could not be guaranteed in an unsupported film.

After a two-year study of various films and laminations, a 25-lb. super-calendered pouch paper was selected for the base stock, extrusion coated with a 2-mil layer of 0.935-density polyethylene.

Even with this material, there must be rigid control of sealing time, temperature and pressure. But the pouch paper substrate evens out heat distribution and prevents slippage and loss of tensile strength at the moment of sealing. A serrated heat sealer is employed for positive sealing action.

The natural properties of the medium-density polyethylene and the thickness of the coating greatly reduce water-vapor transmission through the surface areas of the pouch. Despite the paper backing, the material is reported to stand up well when immersed in hot water and it does not delaminate under either freezing or cooking conditions, according to East Coast Marketers.

Two processing steps dictate the packaging operation: seasoning and freezing. Because the vegetables are completely cooked (in direct steam-injection equipment), they are soft and must be "hardened" for handling in a pouch packer. This is accomplished by dipping the product in a chilled bath containing a seasoning solution, then freezing it in trays. The seasoning solution not only penetrates the product, but forms a frozen glaze on the surface of the separate particles—preventing dehydration and enabling each piece to slide easily through the hopper and filling chute on the packaging machine. For added seasoning, a chip of butter is added by hand to each portion before it drops into the pouch former. Automatic equipment is now under development for the latter operation.

The center-seam pouches are made from a single

web, filled and sealed at the rate of 48 to 50 per minute. Each pouch measures 5 by 4½-in. and contains a 2½-oz. portion. Test-market results reportedly show that the advantages of this pack outweigh the difference in cost over that of conventionally prepared vegetables. The price of the new pouched products is 8 to 9 cents apiece. Twelve pouches are enclosed in a folding carton printed in three colors and giving cooking and serving instructions. Twelve cartons are packed in each master shipping case.

For serving, the individual portions may be heated in boiling water as needed or held on a steam table in a pan containing a small amount of hot water. The pouch is easily torn open for serving.

While an imprinted product name and a packing code are the only identifying marks on the present pouch, the paper affords an excellent surface for more elaborate printing if the product is to be introduced to the retail market.

SUPPLIES AND SERVICES: *Polyethylene-coated pouch paper by The Dobeckmun Co., 3301 Monroe Ave., Cleveland 13, using "Hi-D" resin by Spencer Chemical Co., Dwight Bldg., Kansas City 5, Mo. Cartons by Penn-Mar Container Corp., 1515 S. Russell St., Baltimore 30. Pouch former, filler and sealer by General Packaging Equipment Co., 6100 Westview Dr., Houston.*

Automatic forming and filling of pouches is accomplished on this single-web, six-pocket machine at about 50 packages per minute. Close control of sealing heat, time and pressure assures completely liquid-tight pouches.



PHOTO: SPENCER CHEMICAL CO.

Pressure-sensitive wallhanger

Retailers often are reluctant to accept wallhanger merchandisers because of the unsightly nail or screw holes that are left when the units are taken down. A way to overcome this objection—and to take advantage of one of the few relatively uncrowded display areas in today's stores—is suggested by the paperboard wallhanger with pressure-sensitive tape backing used by Rubbermaid, Inc., for Kar Litter Baskets.

A 4-by-6-in. double-coated strip of the tape is affixed to the back of the die-cut display header piece. A protective liner over the tape is removed by the retailer, who sticks the display card to any convenient spot on his wall. The litter baskets, equipped with wire brackets for mounting on automobile door panels, are hung by slipping the brackets through die-cut slots on the wallhanger "tail" section. Although the completed display weighs 6 lbs., its tape backing holds it in place indefinitely, the company reports. Copy and illustrations printed on the display and on the paper labels of the litter baskets themselves feature a variety of suggestions for product use. *Display by The Ohio Boxboard Co., Rittman, O. "Scotch" brand pressure-sensitive tape by Minnesota Mining & Mfg. Co., 900 Bush Ave., St. Paul 6, Minn.*



Display Gallery

Thermoformed knight in shining armor



To supplement its forthcoming Christmas advertising campaign at the point of purchase, Lenthieric is offering retailers a colorful, three-dimensional window display for its gift packages of Kings Men toiletries.

Focal point of the display is a large, red-colored, tapered paperboard column with a white-bordered oval window. Set inside the window against a black background is a gold-colored, thermoformed butyrate reproduction of Kings Men's knight's-head trademark. Beneath the window, spelling out the theme of the Christmas display, there is promotion copy that reads: "For your knight in shining armor." Adjacent to the column is a circular card with the message: "Gifts for good grooming."

To continue the knight motif, a die-cut, full-color photographic illustration of a family group (reproduced from the company's Christmas advertisement for tie-in identification) features the father dressed in knight's armor.

Arranged at the base of the colorful, 3-D display piece is a selection of seven gift-packaged toiletry products in the company's Kings Men line. *Display by Excella Press, Inc., 400 N. Homan Ave., Chicago 24.*

Mobile display helps sales

More and more, packagers are gearing their display thinking to the problems of space-starved dealers—and as a result, are coming up with merchandising units that do an effective selling job without hogging valuable room on the counter. An interesting recent example is the gravity-feed, self-service dispenser for E. R. Squibb & Sons' Spectrocin-T troches. Only 4 in. wide, the unit holds 24 cartons of the product and features an attention-getting bonus of motion.

A red-and-blue printed paperboard promotional riser on the white-colored metal dispenser is topped by a cartoon representation of a man's head. Suspended from a thread inside the man's die-cut "mouth" is an actual, unwrapped troche that sways back and forth with slight air currents. According to the company, this simple, eye-catching motion display has proved so effective that the cartoon character (without motion) has also been reproduced on new counter cartons.

Mounted on rubber-tipped wire legs, the metal dispenser is of open-frame construction, to permit maximum visibility of the cartons. Instruction data on the bottom of the slender unit are printed in red and blue. *Display by Oberly & Newell Lithograph Corp., 545 Pearl St., New York 7.*



Display Gallery



Space-saving pyramid

A decorative, three-tiered wire-rack counter merchandiser that holds a dozen bottles in pyramidal display has been adopted by Max Factor & Co., Hollywood, to introduce its new Facial Bath brand cosmetic cleansing lotion. The circular unit is designed to permit maximum visibility of the glass bottles (contoured for "no-slip" handling) from front or side viewing angles.

Offered in two sizes ($3\frac{1}{8}$ and $5\frac{1}{8}$ oz.), the bottles are stacked five on the bottom tier, five on the middle tier and one on the top tier of the counter merchandiser. A wire loop that grips the neck of the uppermost bottle to prevent toppling also serves to hold the die-cut, medallion-shaped printed header piece.

Copy on the circular portion of the header offers a guarantee that "Facial Bath will clean your skin better than it has ever been cleaned before." The ribbon-shaped lower portions of the paperboard card are printed with product and price data and a money-back guarantee of satisfaction. *Wire merchandiser by Melco Wire Products Co., 4407 San Fernando Rd., Glendale, Calif. Printed header by Tichnor & McNeil, 915½ N. La Cienega Blvd., Los Angeles.*

*With capacity of 1,200 bottles
per minute—the highest for
any single whiskey—
Seagram's bottling plant
for 7 Crown is a model of
in-and-out efficiency that avoids
warehousing and double-handling costs*

UNLOADING



Picture a liquor-bottling line so precisely designed and controlled that incoming carload lots of case-packed empties are filled and on the road to specific customers 20 minutes later—without warehousing, double handling or delay, day after day.

Add the need to process 14 different bottle sizes, to comply with the varying stamp requirements of 33 states and to satisfy the two-bottles-per-second hunger of 10 packaging lines and you have a vivid idea of the complex operations which the Seagram distillery at Lawrenceburg, Ind., takes in its 20-minute stride.

Little wonder that it is the highest-production distillery in the U. S. for a single brand of whiskey—Seagram 7 Crown. It also handles Seagram Golden Gin. On top of this, the company is saving on space and labor costs because the single handling of bottles in a continuous flow through the plant eliminates

practically all storage of either empty or filled cases. The secret is in intricate planning, split-second efficiency and pushbutton control of a non-stop, in-line operation all the way from unloading to shipping.

While Seagram's apparently complicated system is basically simple, it does require an alert packaging production staff to meet the closely coordinated requirements of daily operations.

Here's how it works at Lawrenceburg for the company, Joseph E. Seagram & Sons, Inc.: Cases of empty bottles are conveyed from incoming rail cars or trucks to the second floor of the packaging plant. Cases are routed on long loops of conveyors totaling more than 750 ft. that serve as temporary holding areas. All cases are funneled to a dispatching station and from there they are fed to one of 10 chutes that lead to 10 packaging lines on the floor below. An 11th packaging line is kept in reserve.

Case unloading from rail cars and trucks feeds constant stream of empties to automatic conveyors (left) for delivery to second floor of packaging plant.



Key man in the intricate routing operation is the panel operator, who sends all of the shipping cases down a double-deck conveyor track running in front of him.



TO SHIPPING:



20 MINUTES

On reaching the packaging floor, bottles are dumped out of the cases onto the packaging lines while empty cases are conveyed overhead to the end of the line for repacking. After standard filling operations, sealed cases are then chuted to the basement level where another web of railroad-like conveyors is used to assemble specific orders which are sent to the shipping dock on the same level just 20 minutes after they arrived.

Even if bottles could be ordered on a monthly schedule, the operation would call for extremely close cooperation between suppliers and the plant. But Seagram must package to meet daily orders of its distributors throughout the United States, each shipment calling for several different sizes of Seagram 7 Crown Golden Gin. Proper state stamps must be applied during a day's production for each order going through the plant. And, as an additional com-

plication, trucks must be ordered in, loaded with specific shipments and dispatched from the plant within a matter of hours.

Each of the 10 lines on the packaging floor operates at 120 bottles per minute. Usually the planning staff sets aside two lines for emergencies or change-over for the next day's output.

Both 7 Crown and Golden Gin are bottled in seven sizes: miniature, half pint, pint, fifth, quart and half gallon, plus imperial quart for export.

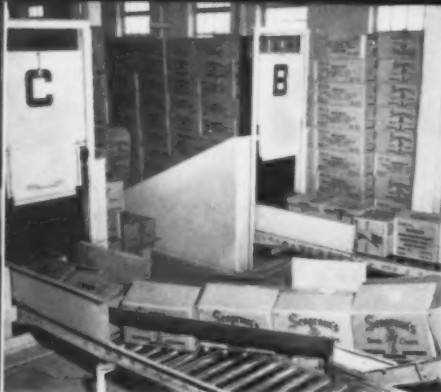
Cases of the different sizes hold various quantities of bottles, ranging from 120 per case for miniatures to six per case for half gallons. Therefore, while line speed is constant, case output per minute is: miniatures, one per minute; half pints, two and a half; pints, five; fifths and quarts, 10, and half gallons about 12.

Standard packaging operations on the bottling

Control signals on wall direct two conveyor men who operate switches to feeder chutes. A green light above any letter indicates that only a 1-min. bottle supply is left on that line; a red light signals an empty line. Here, operator is shown directing the conveyor men to switch over for different-sized bottles coming down the conveyor.

Hand-operated switch (arrow) controls flow of cases to spur conveyors that lead to the packaging floor below.





Inclined chutes drop cases to 10 packaging lines. Emergency supply of cases is in rear.



Packaging-room operations move from rear to front along 10 lines. Usually eight operate, two being used for stand-by purposes or change-over adjustments. An 11th line is held in reserve.

Packaging-floor operator dumps empties onto traveling mesh-screen conveyor and puts cases on overhead conveyor bound for the final repacking station.

lines include automatic cleaning, filling, capping, labeling and strip-stamp application; some lines attach cellulose neck bands automatically. Filled-bottle inspection is visual; case handling is manual.

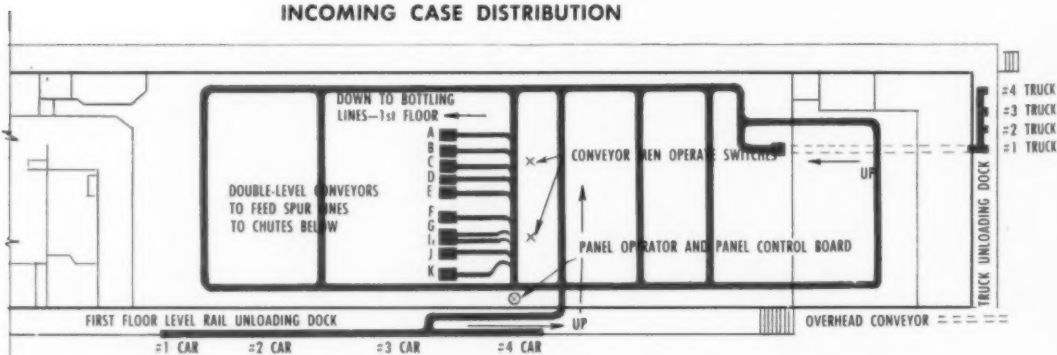
Thirty-three states require either a tax stamp or, for controlled liquor stores, a state identification stamp. In effect, this is another label and must be affixed by hand due to the various sizes and constant shipping changes during the day.

Feeding the case-hungry packaging floor at a

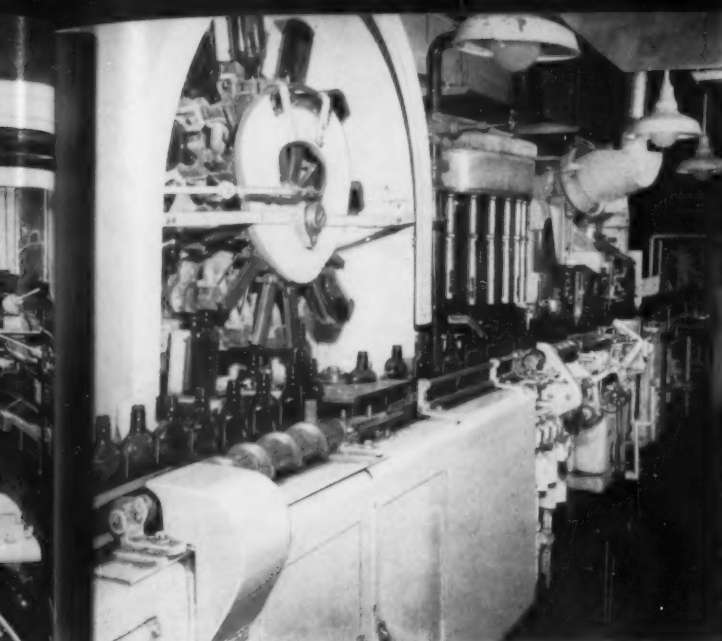
case-per-second clip or better is the supply floor immediately above it. Cases of empties are unloaded from a rail siding and truck dock and conveyed up to this second floor at three points. Before incurring demurrage charges, rail cars may stand on the sidings for three days, but trucks must be unloaded within three hours. Most shipments are by rail; special needs are met more quickly by truck.

Though thousands of cases of empties are in the second-floor supply area, it amounts to only a day's

INCOMING CASE DISTRIBUTION



Cases of empties arrive at railroad unloading dock (bottom of diagram) or truck unloading dock (right) and move up to this second floor, where 750 ft. of conveyors work them around to chutes (middle) leading down to the first-floor bottling lines.



Packaging line begins with this pneumatic cleaner, filling and capping machine.



Next stations are labeling (right) and strip-stamp machine that applies federal tax stamp.



Hand operation affixes the specific stamps which are required by each of 33 different states.

needs and is primarily for emergency or odd-lot production use. Nearly all cases move through the plant in a continuous flow.

Controlling the constant stream of cases to the 10 lines below are three men: a panel operator and two conveyor men.

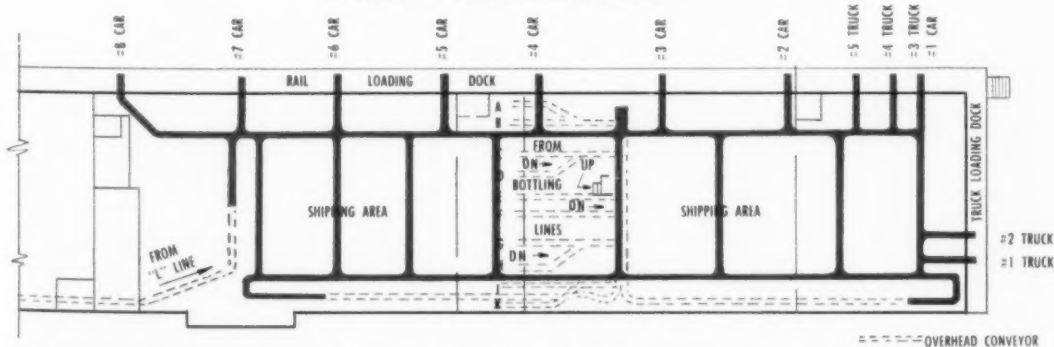
The panel operator sits at an elevated control board from which he regulates the incoming flow of the three conveyors from the unloading docks. He can phone instructions to the unloading dock,

but normally the experienced unloading crews are able to gauge what cases to send up.

After making wide loops around the supply floor, all cases converge in front of the panel operator. He sends them to either an upper or lower deck of a two-level roller conveyor that runs straight ahead of him across the width of the building.

Spur conveyors running off the double-deck conveyor lead to chutes to the first-floor packaging lines. The double-deck conveyors permit two pack-

OUTGOING CASE DISTRIBUTION



Filled cases are conveyed downward (middle) from the 10 bottling lines to this shipping floor, around another maze of conveyors to correct shipping point on railroad loading dock (top of diagram) or truck loading dock (right). Note conveyor coming in at left from emergency bottling line.

aging lines to be fed with cases simultaneously. Two conveyor men open and shut switches to spur conveyors to route cases properly to the floor below.

Behind the panel operator and in full view of the two conveyor men is an automatic signal board that flashes a green light when a line has only a minute's supply of cases left and flashes red when a line is completely empty. A green light on a line running 7 Crown fifths means there are just 10 cases left with one less case every six seconds.

The key to the operation is the daily packaging schedule. This is made up a day ahead and is based on monthly sales estimates from the sales department, refined on a weekly and daily basis by confirmed teletype orders from the company's New York headquarters.

Synchronized with this production schedule must be the deliveries of bottles from suppliers. These, too, are based on the monthly sales estimate and revised on a weekly and daily basis. Because rail delivery is variable, trucks are used for faster delivery to meet changing needs during the week.

The daily packaging schedule may appear at first to call for a constant output for eight or more lines. Actually, each minute's run has a predetermined destination at the shipping dock to complete a specific order. Therefore, on a run of Golden Gin quarts, one hour's production may be for a distributor in New York, another 40 minutes for an Ohio order, the next 90 for Illinois, etc.

Following a typical order through the packaging plant illustrates the close planning required.

Assume that the plant receives a confirmed teletype order from its New York office for a truck shipment to a distributor in Illinois. The day before

packaging, a schedule is made up that will pinpoint the destination of each minute's production on all lines, what each line will package and how long each line will run.

For the Illinois order, a truck is ordered in at 6:45 in the morning. It requires about 20 minutes to set it up for loading. At 7:20 the first of 175 cases of 7 Crown quarts from H line arrives at the shipping dock. All 175 cases are delivered within 20 minutes. (Just before this, H line had delivered 175 cases to another truck going to Wisconsin).

At 8:05, 400 cases of 7 Crown fifths begin arriving from B line and continue until 8:45. At 9 o'clock, cases begin coming in from both A and B lines. By 9:25, 125 cases of 7 Crown pints have been loaded on the left half of the truck and by 10:40 (an hour and 40 minutes later) 250 cases of 7 Crown half-pints have filled the remainder of the truck. The Illinois-bound truck is completely loaded at 10:40, four hours after it was moved up to the shipping dock.

SUPPLIES AND SERVICES: *Labeler by Economic Machinery Co., Div. Geo. J. Meyer Mfg. Co., 60 Fremont St., Worcester 3, Mass. Bottle feeders by Machinery Service Co., Louisville, Ky. Cleaner and cappers by Pneumatic Scale Corp., Ltd., 77 Newport Ave., Quincy 71, Mass. Cappers by Consolidated Packaging Machinery Corp., 1400 West Ave., Buffalo 13, N. Y., and Aluminum Co. of America, Closure Div., Alcoa Bldg., Pittsburgh 19. Fillers by Horix Mfg. Co., Corliss Sta., Pittsburgh 4. Strip-stamp machine, Wright Machinery Co., Div., Sperry Rand Corp., Durham, N. C. Case gluers by Standard Knapp, Div. of Emhart Mfg. Co., Portland, Conn., and J. L. Ferguson Co., Joliet, Ill. Cellulose seals by E. I. du Pont de Nemours, Wilmington 98, Del., and The Celon Co., Muscatine, Iowa.*

Packaging is completed after bottles are repacked in shippers they arrived in. Operator applies shipping-information sticker before cases drop down the chute.



In basement, filled and labeled cases are routed through railway-like system to waiting trucks or rail cars.



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Tensile impact tests on films

*New findings support the theory that instrument readings, properly interpreted, are more accurate than bag drop or falling ball tests**

By R. H. Carey†
and M. S. Nutkis**

In many engineering applications, it is sufficient to know only the strength and ductility of materials as determined by the usual slow-speed tensile test. Generally, the shock-resisting ability of a material may be estimated by considering both its strength and ductility. However, these properties are measured by applying loads at a very slow rate; materials which exhibit good strength and ductility under such conditions may not necessarily possess good resistance to shock loads.

Toughness is an important property of films and sheeting in many of their widespread uses. As these uses increase and new film-forming materials and techniques are introduced, measurement of this property becomes increasingly important.

Present test methods

Bag drop test. This test has been widely used by the Bakelite Co. and consists of dropping a filled film bag from incremental heights until rupture occurs.

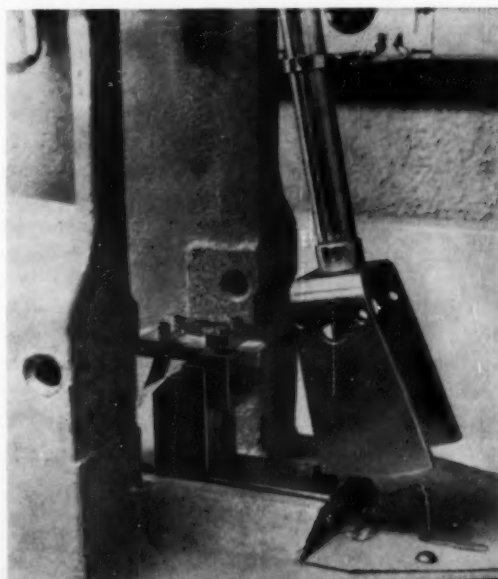
Falling ball test. This procedure measures the energy lost by a freely falling ball as it passes through a film interposed in its path. Film impact strength is calculated from the difference between the velocity of a sphere after it has broken a film specimen and its velocity when allowed to fall freely from the same height.

Tensile impact test. This test, as described by

C. G. Bragaw (1)¹ adapts a standard Izod impact tester for use with plastic materials in direct tension. [A pendulum impact test for plastic film has been described previously (2), but did not make use of a tensile specimen.] Films are conveniently tested in tensile impact by mounting one end of a built-up specimen (several thicknesses) in a pendulum-type machine and allowing the hammer to strike projections (clamps) on the other end, as shown in Figure

¹ Numbers in parentheses identify References appended.

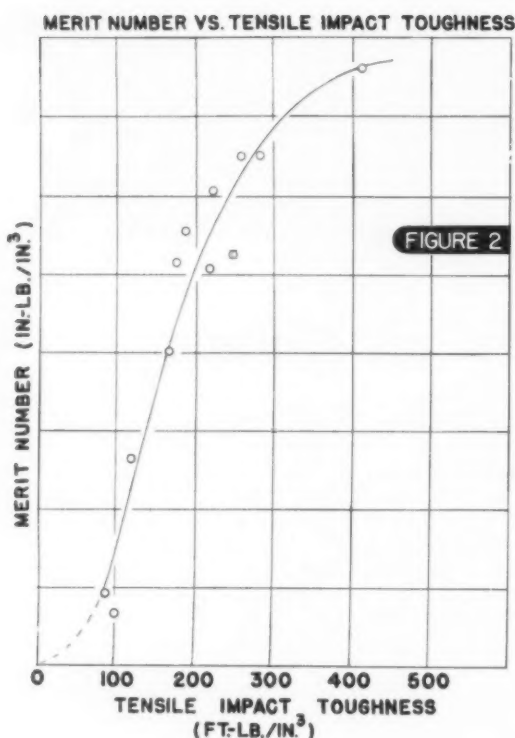
Figure 1. Films are tested in tensile impact by mounting one end of a built-up specimen (several thicknesses) in a pendulum type of machine and allowing the hammer to strike the projections (clamps) on the other end of the specimen.



* From a paper presented before the 14th annual National Technical Conference, Society of Plastics Engineers, Inc.

† Bakelite Development Laboratories, Bakelite Co., Div. of Union Carbide Corp., Bound Brook, N. J.

** Stevens Institute of Technology, Hoboken, N. J.



1. Special jigs and fixtures were made to fit into the standard impact machine and support the specimen as shown. The ordinary hammer is removed from the swinging arm of the impact machine, so that the arm passes over the specimen and hits the striking clamp, thus elongating the specimen. The energy required to break the specimen is read from the semi-circular scale, as is usual in Izod testing.

Tensile impact testing

Before the tensile impact testing of films can be discussed, the general procedures of impact testing should be explained (3, 4, 5). The "effective gauge length" of the dumbbell-shaped specimen is computed from the theory of elasticity (6). In order to compute this effective gauge length, the strain energy of the dumbbell-shaped specimen is equated to the strain energy of a $\frac{1}{8}$ -in.-wide rectangular specimen, which, under a given load, extends by exactly the same amount as the dumbbell specimen does between grips. By means of this conversion it is possible to reduce the energy readings to a unit number in a relatively simple and standard manner. The effective volume is computed to $Ev = 0.067t$.

Actual loss correction and energy to break in the tensile impact test. In performing an impact test by using a pendulum-type machine, there are cer-

tain corrections which are inherent to the apparatus itself. These corrections are intended to account for such energy losses as pendulum friction, pointer friction and windage. In addition, in the tensile impact test an adjustment must be made to account for the energy consumed in tossing the broken half of the specimen and its end clamp. This energy which is imparted to the free fractured half of the specimen and its accompanying end clamp is referred to as toss energy or actual toss correction.

The energy to break a specimen can be calculated by using the formula:

$$E_B = \frac{(S - T) U}{(2 - T)}$$

Where S = scale reading for breaking and tossing the specimen (corrected for friction and windage)

T = scale reading for free toss (corrected for friction and windage)

U = pendulum capacity

Tensile impact toughness

Theoretically, impact toughness is equal to the product of tensile strength and elongation, with various correction factors introduced to account for different shapes of the stress-strain curve, different rates of testing and different shapes of specimens. For simplicity, the product of tensile strength and elongation has been called the "Merit Number." The "Merit Number" of several resins, plotted as a function of the tensile impact toughness, is shown in Figure 2. The correlation is seen to be quite good despite the fact that the "Merit Number" was obtained at very slow speeds and the tensile toughness at a speed of $11\frac{1}{2}$ ft. per second. This graph is principally of value in assessing the relative importance of the stress-strain curve. Variations in either strength or elongation will produce variations in impact toughness. It should be noted that the Izod test is deliberately designed to introduce the notch effect; the tensile impact test, to eliminate it.

Figure 3 shows tensile impact toughness plotted in terms of two fundamental resin parameters: density and melt index. We found that with these resins it was possible to divide the total data into approximately three categories, based on density: low, medium and high density. At any given melt index, for example, the lowest-density resins prove toughest. In any given density category, a decrease in melt index produces a far tougher resin. This is consistent with the general behavior of the resins, since the low-density materials are softer and usually elongate more than the more-crystalline samples.

As with sheet material, the results obtained from the tensile impact test are resolved in units of energy per unit volume; e.g., foot pounds per cubic

inch (by taking into consideration the effective volume of the specimen section between the clamps). With films, two results are generally obtained—toughness in the machine direction and toughness in the transverse direction—thus providing information concerning the effect of testing directions or orientation.

However, in order conveniently to compare the tensile impact properties of diverse films, it is helpful if the property can be reduced to a single meaningful figure for each film. With this intent it was arbitrarily decided that the directional variations in film toughness may be resolved into a single value, called "equivalent tensile impact toughness," by using the square root of the product of the tensile toughness values in the machine and transverse directions. That is

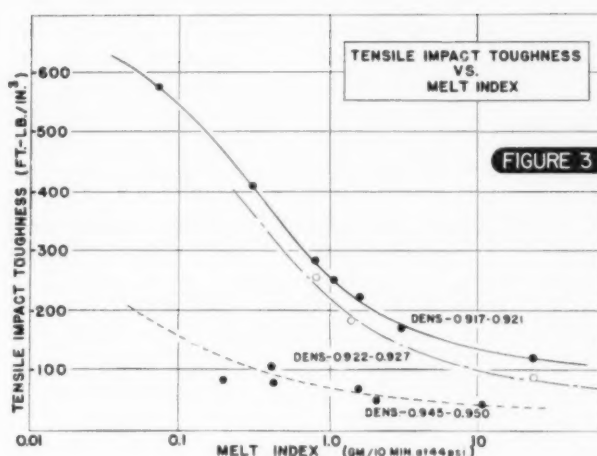
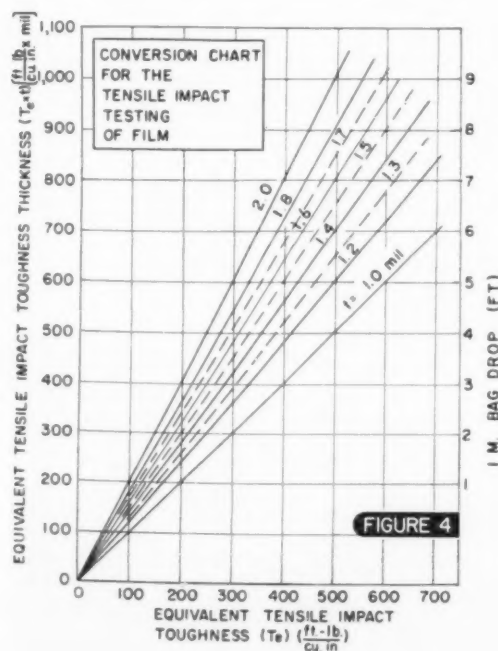
$$T_e = (T_{md} T_{td})^{1/2}$$

T_e is the "equivalent tensile impact toughness"

T_{md} is the tensile impact toughness in the machine direction

T_{td} is the tensile impact toughness in the transverse direction

For a film which is fairly isotropic (e.g., one whose properties do not vary with direction so that T_{md} and T_{td} are approximately equal), this resolution technique will have little value compared to a simple averaging procedure. However, when the film toughness differs considerably in the machine and transverse direction, this calculation will pro-



duce a result which more closely approximates the lower value than would a numerical average.

Since the tensile impact results are presented in units of foot pounds per cubic inch, it is possible not only to compare film resins and the effect of extrusion conditions on a fundamental toughness basis, but also to compare the relative toughness of the films in their final condition simply by multiplying the fundamental toughness value by the film thickness. This technique as well as that of equivalent toughness is used to obtain a correlation with the increment bag drop test.

Testing of polyethylene films. The tensile impact test has been employed to determine the toughness of many polyethylene films; in most instances bag drop values are available and in some cases data have been obtained by means of the falling ball test. Table I lists the values collected by the three film impact tests on an assortment of polyethylene films. One salient conclusion provided by this table is that the results of the falling ball test show poor correlation with those of the tensile impact or bag drop test. Most of the films listed in Table I were extruded (approximately 1.5 mil nominal thickness).

Table II presents tensile impact and bag drop test results of four resins, each of which were flat ex-

Table I: Impact strength of polyethylene film

| Material | Average thickness (mils) | Tensile impact toughness (ft.-lb./cu. in.) | | | $t \times T_e$ (ft.-lb. x mils) cu. in. | Bag drop (ft.) | Falling ball (kg. cm.) mil |
|----------|--------------------------|--|-----|-------|---|----------------|----------------------------|
| | | MD | TD | T_e | | | |
| I | 1.7 | 329 | 347 | 337 | 570 | 4.0 | 9.4 |
| II | 1.5 | 388 | 380 | 383 | 580 | 5.0 | 10.0 |
| III | 1.6 | 170 | 266 | 213 | 340 | 2.6 | 7.0 |
| IV | 1.7 | 266 | 162 | 207 | 350 | 3.0 | 9.8 |
| V | 1.8 | 238 | 45 | 103 | 180 | 1.0 | 7.0 |

truded under four different conditions. The resins which were involved were:

| | Melt index (gm./10 min.) | Density (gm./cc.) |
|---------|-----------------------------|----------------------|
| Resin A | 1.6 | 0.922 |
| Resin B | 2.0 | 0.922 |
| Resin C | 3.0 | 0.920 |
| Resin D | 3.0 | 0.930 |

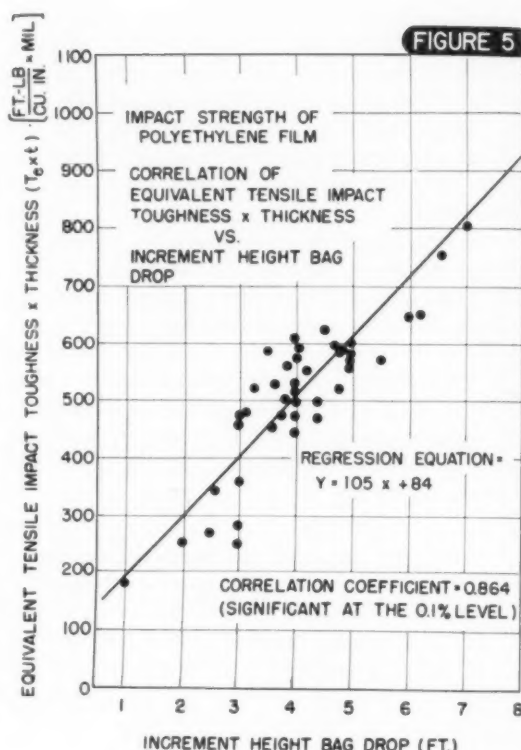
The resins were extruded under the following conditions:

Compound temperatures, 215 deg. C.
Flat film 54 in. wide

| Extrusion condition designation | Roll speed (f.p.m.) | Stretch distance (in.) |
|---------------------------------|------------------------|------------------------|
| (1) | 60 | 1 |
| (5) | 80 | 1 |
| (8) | 80 | 4 |
| (12) | 120 | 4 |

The tensile impact data presented in Table II imply that the optimum extrusion conditions for film toughness may vary from resin to resin. A distinct advantage of the tensile impact test is evinced by this type of investigation, since it measures a mechanical property of the film (i.e., toughness), thereby accounting for film thickness and permitting film toughness to be compared on a unit thickness basis.

Correlation of tensile impact test with the bag drop test. By treating the data presented in Tables I and II statistically, a linear regression and correlation coefficient may be obtained relating tensile impact toughness to bag drop values. Since the bag drop data do not normally account for differences in film thickness, Table II includes a column for the product of "equivalent tensile impact toughness" and



thickness ($t \times T_e$) so that the results which are obtained from the two tests may be compared on an equal basis.

Figure 4 provides a convenient chart for performing this transformation. It consists of lines representing a constant thickness plotted on the

Table II: Effect of extrusion conditions on impact properties of polyethylene film

| Resin | Extrusion condition # | t (mils) | Tensile impact toughness (ft.-lb./cu. in.) | | | | T _e | t x T _e | Bag drop (ft.) |
|-------|-----------------------|----------|--|------|------|------|----------------|--------------------|----------------|
| | | | MD* | TD* | | | | | |
| A | (1) | 1.2 | 409± | (22) | 471± | (23) | 438 | 520 | 3.25 |
| | (5) | 1.5 | 389 | (20) | 436 | (12) | 411 | 610 | 4.0 |
| | (8) | 1.3 | 445 | (13) | 445 | (13) | 445 | 580 | 4.75 |
| | (12) | 1.5 | 404 | (14) | 432 | (19) | 416 | 620 | 4.5 |
| B | (1) | 1.3 | 453± | (14) | 459± | (36) | 473 | 610 | 4.0 |
| | (5) | 1.5 | 390 | (16) | 403 | (25) | 396 | 590 | 3.5 |
| | (8) | 1.4 | 411 | (11) | 396 | (13) | 408 | 570 | 5.0 |
| | (12) | 1.5 | 380 | (20) | 367 | (11) | 372 | 560 | 5.5 |
| C | (1) | 1.2 | 345± | (15) | 426± | (32) | 383 | 460 | 3.0 |
| | (5) | 1.4 | 308 | (14) | 401 | (16) | 351 | 490 | 4.0 |
| | (8) | 1.3 | 399 | (20) | 425 | (27) | 411 | 530 | 4.0 |
| | (12) | 1.3 | 348 | (13) | 391 | (14) | 368 | 470 | 3.75 |
| D | (1) | 1.3 | 280± | (7) | 130± | (14) | 190 | 250 | 2.0 |
| | (5) | 1.5 | 265 | (9) | 123 | (10) | 181 | 270 | 3.0 |
| | (8) | 1.4 | 237 | (9) | 136 | (13) | 179 | 250 | 2.5 |
| | (12) | 1.5 | 238 | (17) | 113 | (26) | 163 | 240 | 3.0 |

* 95% confidence interval based on the average of 10 samples.

equivalent tensile impact toughness times average thickness versus equivalent tensile impact toughness chart.

In Figure 5, these data were then plotted against the corresponding increment height bag drop value and the linear regression line was calculated and drawn. The correlation coefficient, based on 44 films, is 0.86, which is significant at the 0.1% level. The regression line in Figure 3 provides a means of converting the value obtained in the tensile impact test to bag drop and vice versa.

This very significant correlation with the bag drop test indicates that the tensile impact test is meaningfully evaluating the film impact strength or toughness. It also substantiates the use of the arbitrarily selected "equivalent tensile impact toughness."

Film investigations

In addition to its success in evaluating the toughness of polyethylene films, the tensile impact test is also extremely versatile, convenient to perform, possesses good precision, requires only small test specimens and is capable of testing all films in a common test. These attributes, as well as several others, have permitted investigations of the effect on film toughness of such treatments as the addition of waxes to polyethylene, biaxial stretching of films at various temperatures, as well as the variations of film toughness with testing direction and the toughness of polyethylene-coated paper.

Effect of wax additives on the impact properties of polyethylene film. An interesting example of the usefulness and versatility of the tensile impact test was an evaluation of the effect of a wax additive on the impact behavior of an extrusion-grade polyethylene film.

Ten specimens of each film composition and a control were tested in tensile impact in the machine

Table III: Extrusion-grade polyethylene film

| Designation | Microcrystalline wax, % | MD | TD | Te |
|-------------|-------------------------|----------|----------|-----|
| A | 0 | 496 ± 24 | 428 ± 36 | 460 |
| B | 10 | 114 ± 3 | 98 ± 8 | 106 |
| C | 15 | 52 ± 6 | 59 ± 9 | 55 |

Table IV: Composite test sample

| | Average thickness (mils) | Energy to rupture (ft.-lb.) | Tensile impact toughness (ft.-lb./cu. in.) |
|-----------------------------------|--------------------------|-----------------------------|--|
| Polyethylene (typical) | 1.5 | 0.34 | 350 |
| Kraft paper (60#) | 5.2 | 0.08 | 20 |
| Polyethylene-coated paper | 7.8 | 0.11 | 20 |
| Polyethylene and paper (uncoated) | 6.6 | 0.62 | 140 |

(MD) and transverse (TD) directions, using a built-up sample. The results, the 95% confidence intervals and the "equivalent tensile impact toughness" (Te) are presented in Table III.

These data definitely indicate that the incorporation of microcrystalline wax considerably reduces the tensile impact toughness of polyethylene film. Since the tensile impact results are presented in units of energy per unit volume, by considering the "effective" volume of the specimen section between clamps, the results of a test of this type may be meaningfully compared. By using a specimen of identical geometry in each case, the comparison is, essentially, on a unit-thickness basis.

Tensile impact testing of polyethylene-coated paper. In another demonstration of its versatility, the tensile impact test has been used to compare the impact toughness of paper and polyethylene-coated paper, a study which was not previously possible by means of the available film-impact tests. A built-up specimen (10 layers) was used and the data appearing in Table IV represent the averages of 10 samples.

The tensile impact data in Table IV indicate the rather surprising result that there is no significant

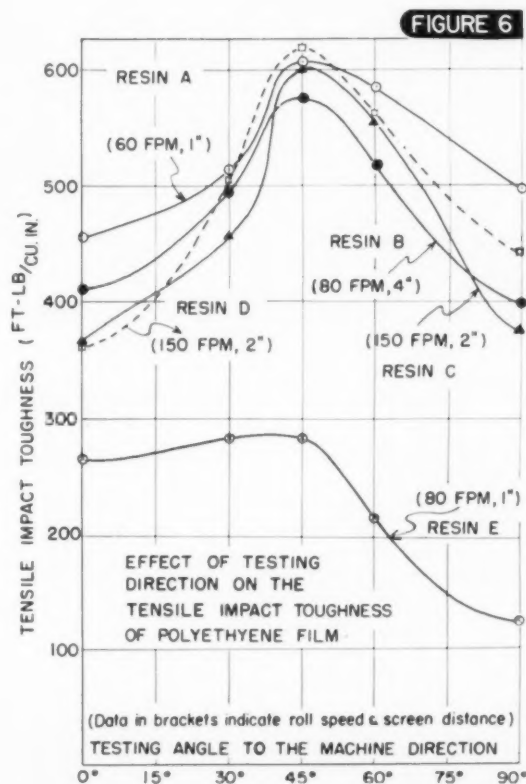


Table V: Testing film at various angles

| Resin | Roll speed (f.p.m.) | Stretch distance (in.) | Angle (deg.) | | | | | TD* |
|-------|------------------------|---------------------------|--------------|--------|--------|--------|--------|-----|
| | | | MD* | 30° | 45° | 60° | | |
| A | 60 | 1 | 453/14 | 503/14 | 604/9 | 584/24 | 495/36 | |
| B | 80 | 4 | 411/11 | 493/16 | 576/21 | 515/15 | 396/13 | |
| C | 150 | 2 | 369/9 | 455/19 | 600/46 | 555/26 | 372/18 | |
| D | 150 | 2 | 365/7 | 504/24 | 619/9 | 562/31 | 441/17 | |
| E | 80 | 1 | 265/9 | 279/9 | 282/17 | 213/14 | 123/10 | |

* 95% confidence interval.

difference between the impact strength of polyethylene-coated paper and plain kraft paper of the same thickness. This result, before further analysis, is unexpected because of the substantial difference in impact toughness between polyethylene and kraft paper (approximately 350 vs. 20 ft.-lb./cu. in.). Insight into its cause came from an inspection of the fracture obtained with the polyethylene-coated paper. Normally, polyethylene film will elongate before rupturing in tensile impact, while paper exhibits a brittle-type failure. But when polyethylene-coated paper is fractured, there is no extension of the polyethylene; e.g., it fails as if it were completely paper.

The last test sample listed in Table IV was a composite consisting of alternately spaced polyethylene film and kraft paper. With this arrangement, the polyethylene film experiences its expected or normal elongation and a comparatively high energy-to-rupture is required (which is a natural consequence, since toughness is actually a property

determined by several interrelated factors, primarily tensile strength and ductility).

This analysis indicates that when polyethylene is coated on paper its ductility is completely restrained and its toughness advantage is lost. These results imply that if it is desired to design a multiwall bag with improved toughness as well as moisture resistance, etc., a completely separate and integral polyethylene bag should be provided rather than one of polyethylene-coated paper.

From a design point of view, the energy-to-rupture data in Table IV indicate that a separate polyethylene bag (1.5 mils) would provide approximately three times the impact strength of a polyethylene-coated paper and four times that of a kraft paper (60 lb.), while a polyethylene bag inside a kraft paper (60 lb.) bag would provide a bag with approximately five and one-half times the toughness of the polyethylene-coated paper. Thus, the test results do not substantiate the often-expressed theory that polyethylene-coated paper is tougher than uncoated paper. However, the polyethylene coating does impart other properties, such as moisture resistance. The net result may be a more durable bag.

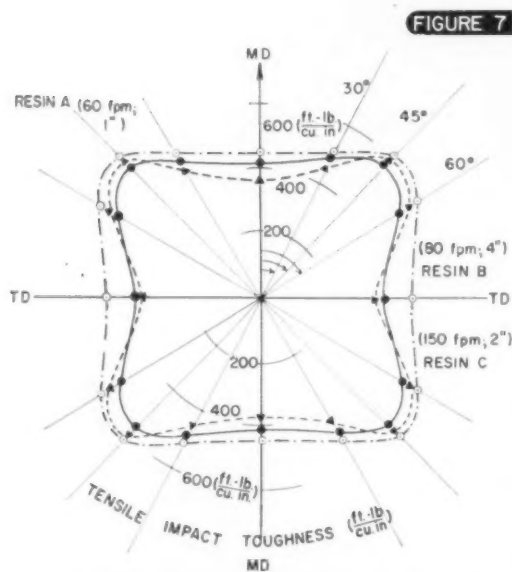
Effect of testing direction upon the tensile impact toughness of polyethylene film. Advantage has been taken of the versatility and convenience of the tensile impact test to study the variation of polyethylene film toughness with testing direction. Thus, although film impact toughness is conventionally determined in the machine and transverse directions, it is of interest to know what function toughness is of film direction or orientation. This is accomplished with relative facility in the tensile impact test simply by cutting and testing specimens at any desired angle to the machine direction.

Results of this investigation are listed as the tensile impact toughness at various angles to the machine direction (Table V).

Curves revealing the variations of tensile impact toughness with angle from the machine direction are plotted in Cartesian coordinates (Figure 6) and polar coordinates (Figure 7).

The four upper curves of Figure 6 represent a variety of materials, different speeds of extrusion and different stretch distances. In both the machine and transverse directions, the impact strength averages approximately 400 lbs. per cubic inch. At 45 deg. to these directions, the tensile impact strength is a maximum and equal to approximately 600 7ta lbs. per cubic inch. These numbers are fairly representative of most of those encountered.

The lower curve illustrates an extreme condition which may be encountered because of the resin, the film speed or the stretch distance. In this case, the impact strength in the [Continued on page 207]



EFFECT OF TESTING DIRECTION ON THE TENSILE IMPACT TOUGHNESS OF POLYETHYLENE FILM



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*A Packaging Decision
Can Change the Course of a Business*



"OLIN CELLOPHANE" IS A REGISTERED TRADEMARK

Polystyrene film

Controlled biaxial orientation gives flexibility and toughness to low-cost, clear, odorless, tasteless plastic.

A technical report on this new packaging film

By F. C. Dulmage*

Oriented polystyrene film has been known for about 20 years. Early attempts by the Germans at manufacturing a film of satisfactory quality for electrical insulation (1,2)¹ were not entirely successful. This was due in part to problems of controlling orientation and in part to difficulties of producing a film less than 1 mil thick. The rather small market afforded by electrical insulation limited development work and postponed large-scale, economical manufacturing of an improved product.

In more recent years, the Plax Corp., working extensively on controlled orientation and improved properties, developed a product of widespread interest. Their work, well reported in the technical literature (3, 4, 5, 6, 7, 8), made possible the more economical production of larger amounts of film of such quality as to open up additional markets.

The Dow Chemical Co. has entered this market and is producing film from unmodified polystyrene with controlled biaxial orientation. This crystal-clear, odorless and tasteless product possesses sufficient flexibility and toughness to fit well into semi-rigid and window-box packaging. The Dow film, trade named "Trycite," approved by Government agencies and available at surprisingly low cost, is showing the way to new possibilities in the large and constantly growing food-packaging field.

Orientation of unmodified polystyrene film also provides sufficient toughness for many other applications. This is a process of mechanically stretching the plastic in two directions under controlled conditions. Two directions are necessary, since orientation in one direction would produce a film which is highly flexible in that direction only. It would be very brittle if bent in any other direction.

Orienting the film arranges the molecules in an orderly fashion and to an appreciable extent in a plane parallel to the film surface. The major axes of alignment in this plane are at right angles and the film is, therefore, said to be biaxially or bilaterally oriented.

In Figure 1 (A), the molecules are shown in a

*Plastics Technical Service, Dow Chemical Co., Midland, Mich. From a paper delivered before the 14th annual National Technical Conference, Society of Plastics Engineers, Inc.

¹Numbers in parentheses identify References appended.

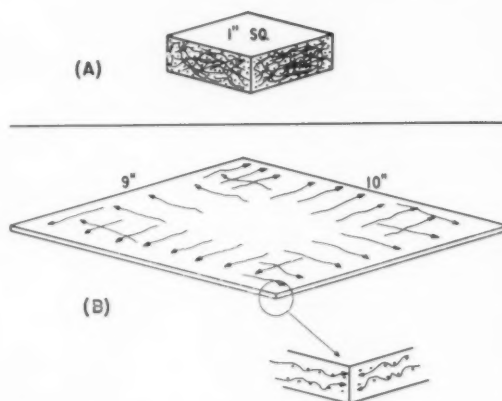


Figure 1. In (A), molecules are shown in random distribution in a section of unoriented polystyrene. This is a unit sufficient to make the oriented film area shown in (B). Note that stretch is not equal in both directions.

random distribution pattern in a section of unoriented plastic. The section also represents a "unit area" of hot plastic prior to transforming it into the oriented film area shown in (B).

Since polystyrene is an amorphous material, it is not subject to complete orientation such as a crystalline material might be. The arrows are used to show directional orientation only.

The area of the film, shown in (B) of Figure 1, is about 90 times greater than that of the unoriented plastic. Note that the stretch is not equal in both directions. The plastic is stretched about nine times in one direction and 10 in the other, with the greater orientation in the lengthwise direction.

The amount of orientation is very critical with respect to the physical properties of the film, as is shown in the curve in Figure 2. The area between Points A and B denotes an increase in orientation with essentially no improvement in mechanical properties. However, the tensile strength and elongation improve at an almost unbelievable rate, as is shown by the change in slope between Points B and C, but added orientation beyond C-D results in a

gradual loss of properties. Thus, the ideal area for effective orientation is under the C-D portion of the curve, which actually is rather narrow. The exact location of the "ideal" area may vary considerably, as this depends upon the processing conditions.

Packaging properties

Polystyrene film, oriented under ideal conditions, has properties which are highly suited to many flexible and semi-rigid packaging requirements. This market in 1955 consumed an estimated 500 to 550 million pounds of various films (9). It is still growing. Polyethylene and cellophane accounted for most of this volume. These are relatively low-cost materials and any new film will need to be competitive in cost if it is to make its way in this field.

Since the supply of polystyrene resin is plentiful, cost is low and the density is favorable, it is finding a place in this field. The area factor for oriented polystyrene film is approximately 26,000 sq. in. per pound for a 1-mil film. This compares to about 19,500 for moistureproof cellophane, 22,000 for cellulose acetate and about 30,000 for polyethylene film of the same thickness.

The area factors must be combined with costs to be significant. The bar chart shown as Figure 3 illustrates relative costs for films of the same thickness. The open bars represent the area yield per pound; the cross-hatched bars, the yield per dollar. Thus polyethylene is seen to be the lowest-cost film, gauge for gauge. The specific cost for a given application will depend upon the film thickness required. Although other factors may affect the cost, the comparisons based upon equal thickness are valid to illustrate the competitive position of oriented polystyrene film.

Figure 4 shows the relative water-vapor transmission and gas-permeability rates of oriented polystyrene, cellulose acetate and polyethylene films. Tests have shown that the degree of orientation does not affect the permeability of polystyrene.

The water-vapor transmission rate of polystyrene, which is 6.2, is not so low as that of polyethylene, although it is considerably better than that of cellulose acetate.

Since the gas permeability of oriented polystyrene is lower than that of polyethylene and slightly higher than that of cellulose acetate, oriented polystyrene is suited for wrapping many fruits and vegetables. Many of these products require a certain minimum level of respiration and, if not allowed to "breathe," will soon discolor, lose their taste, develop off-flavors and then rot.

The overwrapped molded polystyrene and paper-board tomato cartons shown in Figure 5 are good examples of typical vegetable-package overwraps in

EFFECT OF ORIENTATION ON FILM PROPERTIES

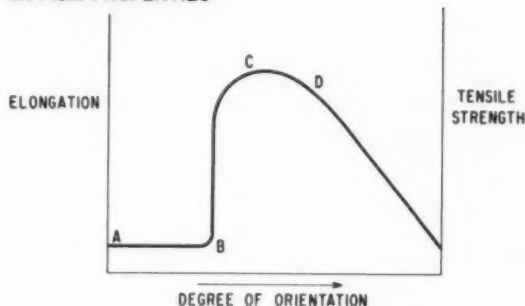


Figure 2. Amount of orientation is very critical in effect on the physical properties of polystyrene film. There is no improvement up to B; then an almost vertical rise to the desirable area C-D, and a gradual loss occurs beyond D.

which oriented polystyrene film is showing considerable progress. The high gloss and excellent transparency are apparent.

Oriented polystyrene has many other good properties, too, as shown in Table I. Its water absorption is nil; it ages well indoors, although its outdoor life in sunlight is limited. Its specific gravity is favorable, which classifies it as a "high-coverage" film. The tensile strength in the (LW) or roll direction is good, as is its strength in the (CW) or cross-roll direction. Tear and burst strengths are satisfactory. The melting point is rather high compared to the softening point. However, the critical temperature is shrink point, since the film is highly oriented. Chemical resistance to acids, alkalis, greases, oils (both vegetable and mineral) and alcohols is very good, although polystyrene has poor

FIGURE 3

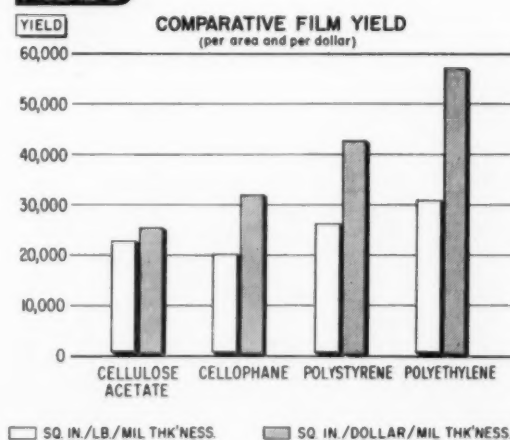


FIGURE 4 WVTR & GAS TRANSMISSION RATES

| | | POLY- STYRENE | CELLULOSE ACETATE | POLY- ETHYLENE |
|--|-----------------|------------------|----------------------|-------------------|
| WVTR gms/100.SQ.IN./24 HR. /mil AT 95% R.H. - 90°F | | 6.2 | 46 | 0.915 |
| GAS TRAN. ccs/100 SQ.IN. /24 HRS. / mil AT 1 ATM. 23°C | O ₂ | 213 | 110 | 516 |
| | CO ₂ | 926 | 560 | 1350 |
| | N ₂ | 42 | 26 | 212 |
| | AIR | 62 | 38 | 224 |

resistance to practically all other organic solvents.

The film can be printed by conventional methods, such as flexographic, rotogravure and letterpress. Since the film absorbs little or no moisture, it is very stable and allows sharp registration of printing. Ink adhesion is good, since there is nothing in the film to bleed out or exude and thus cause release of the printing or cause the film to become sticky or foggy.

The film can be fabricated into bags on commonly used bag machines using a glue-type seal. Overwraps can be fabricated on an overwrap machine, such as

Figure 5. High gloss and excellent clarity, combined with favorable gas permeability, make oriented polystyrene suitable for fruit and vegetable overwraps. Tomatoes are shown in molded polystyrene (center) and in paperboard trays.



the Package Machinery FA type, using a glue seal between the film and the reverse side or back of the package. Envelope windows can be applied on standard window-patching equipment, using glue.

Because oriented polystyrene doesn't require a plasticizer or depend on moisture content for flexibility, it ages well and can be stored under a wide range of conditions.

Metallizing and lamination

Since it contains no volatile additives and water absorption is negligible, polystyrene film is easily metallized. In addition to decorating, metallizing lowers the rate at which the film transmits water vapor and gas, as is shown in Figure 6. The gas transmission rate of the metallized film is reduced by a factor of eight to 18, depending on the gas. The water-vapor transmission rate is not reduced so much as the gas transmission rate. The water-vapor transmission rate on the metallized side of the film is appreciably affected, whereas the gas transmission rate is not. It is also worth noting that the water-vapor transmission rate can be further reduced by using a heavier metal coating, although this has little, if any, effect on gas transmission.

Extruders of high-impact polystyrene sheeting

Table 1: Properties of 1-mil oriented polystyrene

| Property | Units | Approximate value |
|----------------------------------|------------------|--|
| <i>General:</i> | | |
| Water absorption | Per cent | Nil |
| Indoor aging | | Excellent |
| Resistance to sunlight | | Not recommended |
| Specific gravity | Gms./cc. | 1.05 |
| <i>Mechanical:</i> | | |
| Tensile strength | Lbs./sq. in. | L.W. 9,000-10,000 C.W. 9,000-10,000 |
| Tear strength | Gms. | L.W. 25, C.W. 25 |
| Burst strength | Lbs./sq. in. | 30-60 |
| <i>Thermal:</i> | | |
| Melting point | Deg. F. | 318 |
| Softening point | Deg. F. | 201 |
| Shrink point | Deg. F. | 185 |
| Thermal coefficient of expansion | In./in., deg. C. | 6.8×10^{-5} |
| <i>Chemical resistance to:</i> | | |
| Weak acids | | Good |
| Strong acids | | Good |
| Weak alkalies | | Excellent |
| Strong alkalies | | Good |
| Grease & oils | | Good |
| Mineral oils | | Excellent |
| Organic solvents | | Poor |
| Vegetable oils | | Good |
| Alcohols | | Good |

FIGURE 6**TRANSMISSION RATE COMPARISON OF
METALLIZED & PLAIN POLYSTYRENE FILM**

| GAS TRANS. cc/100 SQ IN./mil/24 HRS. -ATM 23°C | PLAIN POLYSTYRENE | | METALLIZED POLYSTYRENE | |
|---|----------------------|-------|---------------------------|--|
| | O ₂ | 275 | 15 | |
| | N ₂ | 38 | 3 | |
| W.V.T.R. gms/100 SQ IN./ 24 HRS./mil AT 95°R.H. 90°F METALLIZED SIDE AWAY | CO ₂ | >1000 | 80 | |
| | | 6.2 | 0.9 | |
| W.V.T.R. gms/100 SQ IN./ 24 HRS./mil AT 95°R.H. 90°F METALLIZED SIDE TOWARD | | 6.2 | 0.45 | |

have found the thinner gauges of oriented film to be an excellent material to produce a glossy sheet by lamination. The laminating bond is accomplished by utilizing the heat of the high-impact sheet at the time of extrusion. Thus, the processing cost of the material is very low.

If desired, the thin oriented film can be reverse printed prior to laminating, to produce an unlimited number of "locked-in" designs or colors. This eliminates the possibility of the ink contaminating the product in a package if used in this manner, since the ink cannot touch the product. It also protects the ink film from abrasion. This makes it possible to produce on a continuous basis predecorated containers by vacuum or pressure-forming techniques, as shown in Figure 7.

Sheet

Film in thicknesses of 3 mils or heavier is commonly called sheeting. It can be produced by methods somewhat similar to those used to produce the film. The combination of good properties and low cost has made possible new uses for this rigid plastic sheet. While oriented polystyrene sheet cannot replace all applications presently using other plastics, it can be used for many of them. Fabrication can be accomplished by present practices being used for rigid thermoplastic sheet.

Limitations

Like many other plastic materials, oriented polystyrene has some shortcomings. It acquires a static charge and can be somewhat difficult to "machine" in packaging equipment. It can be scratched and it is not the easiest film to heat seal. However, it can be easily cemented to itself and is readily adhered to paperboard or other materials. It is tasteless and odorless, doesn't discolor on aging and its properties remain practically unchanged even when the material is subject to very low temperatures.

Some of the drawbacks mentioned may be overcome by using surface coatings. Heat-sealing, scratch-resistant, non-fogging films and films having less static attraction can be expected. These are not commercially available at the present time, but they have been produced experimentally. Of course, the coatings will add to the cost of the base film and their use will depend on the demand for such material and the price limitations.

Copolymers

Copolymers, such as styrene-acrylonitrile, provide films and sheets possessing properties considerably different from those of polystyrene. The products produced from this copolymer are more flexible and exhibit better scratch resistance. The chemical resistance is generally improved in the copolymer sheet. This product has higher tensile strength, greater elongation and added toughness, and is more easily adapted to fabrication methods presently being used, especially those which are being used for cellulose acetate.

In a tray-type package produced by the Plax Corp., the lids are regular polystyrene, whereas the vacuum-formed bottoms are fabricated of copolymer sheet, since it has the necessary toughness and impact resistance and also is well suited to the vacuum-forming process.

Other copolymers will eventually extend the uses of the polystyrene family of films and sheeting beyond the existing hori- [Continued on page 226]

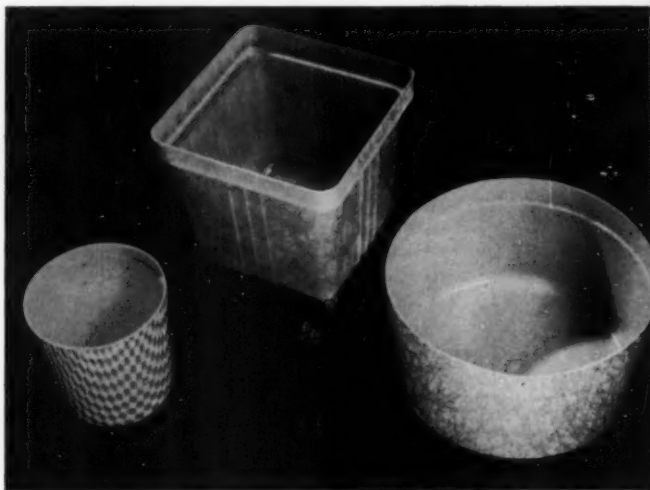


Figure 7. Thermoformed containers made of laminated polystyrene film with decorative pattern reverse-printed on one sheet of film prior to laminating and "locked in." This eliminates all possibility of ink contact with the product.

Q Questions & A Answers

This consultation service on packaging subjects is at your command. Simply address your questions to Technical Editor, Modern Packaging, 575 Madison Ave., New York 22, N. Y. Your name or other identification will not appear with any published answer.

Defining film clarity

Q: *We are confused by statements concerning the transparency of some types of packaging films. For example, polyethylene films seem to have wide differences in transparency, yet they appear to be acceptable for many packaging uses. Is there any standard definition or test method for defining the clarity of packaging films? If not, what must we consider if we should try to set up a quality-control test?*

A: At the present time there is no standard definition or test method for defining the clarity of packaging films, but at least one of the technical societies is engaged in the study of this problem. It is becoming increasingly important to be able to measure consistently and assign a numerical value to clarity so that variations in quality can be detected.

In speaking of the clarity of packaging materials, one must bear in mind that the sharpness and brilliance of the object packaged as viewed through the packaging film is the primary concern. In this process, some of the rays of light will first be reflected from the outer surface of the film and some will be absorbed by the film because of its composition. The remainder will be absorbed or reflected by the object in the package and the reflected rays must again pass through the film before the object can be seen. In the process of returning, additional rays of light may be lost to the viewer owing to scattering and absorbance. Thus, a film of high clarity will allow the majority of light rays striking on its surface to pass through with a minimum amount of scatter and absorbance and, conversely, a film of low clarity will scatter or absorb the majority of light rays reaching its surface, thus reducing the amount of transmitted light.

In the case of overwraps, the color of a film must be considered. A film

with a definite color cast can change the intensity and hue of the printing or of the product.

In summary, film clarity is proportional to the amount of undistorted light reaching the eye of the observer. This amount is less than the total impinging on the film for the following reasons:

1. Reflectance of the light from the film surfaces.
2. Scatter of the light from the surface of the film as well as internally.
3. Absorbance of light by the film.

It is our opinion that these three physical characteristics must be determined in a satisfactory test method for packaging-film clarity.

Breathing and shelf life

Q: *We make and package a baked crust that has many household uses. We have not had a long field experience with this product, but have been advised that the product should "breathe" if we expect long shelf life. What does this mean as applied to a package and will breathing benefit our product?*

A: The term "breathing" is properly used in connection with the packaging of vegetables, fruits, etc., where the metabolic processes require control of the atmosphere in the package. This term does not apply to baked goods or any processed product that has no living cells. In the case of a baked crust there can be a requirement for the control of package atmosphere. Some food products carry fats or oils as shortening and these can be further degraded by the baking process. Such products can become rancid by oxidation of the oils and fats during normal storage. The result of the development of rancidity can be off-taste in the product and off-odors in the package. The amount of off-odors that remain in the package depend upon how tightly it is sealed and the materials of its construction.

For example, cellophane, glassine and some plastic films will resist the passage of rancid odors much more than will waxed papers, polyethylene and some other plastic films. You should test several materials in both sealed and unsealed packages to see what type of sealing and kind of material give the longest shelf life for your product.

Printing special polyethylenes

Q: *We are making a film from a special formulation of polyethylene resins. We have been treating this film to make it printable by a process which we use for our standard type of polyethylene film. Several of our customers have told us that the special film does not print well and that ink adhesion is not good. Can you tell us whether mixtures of polyethylene resins, slip agents and similar compounds can affect the surface treatment of the film?*

A: It is apparent from the experiences of your customers that the printing quality of the special polyethylene film is not the same as for a normal polyethylene film. The surface treatments used to alter the surface of polyethylene films so that they can accept and hold inks are based on certain chemical reactions involving heat and oxygen. With normal resins, the intensity and duration of the treatment can be controlled so that the reactions produce a surface that is easily printable. However, if a mixture of resins is used, or if other compounds are present, then the treatment level may not be effective, or the reactions may not produce the necessary receptivity to the inks.

You could try more intense treatment, but this may be difficult to control and might affect the heat sealability of the film. The best answer is to attempt to make this special film with another formulation that responds to the normal level of surface treatment.

DU PONT
"CEL-O-SEAL"
BANDS

packaging news

for sales-conscious glass packers



HOW YOUR PACKAGE CAN HIGHLIGHT MAJOR SALES POINTS!

A little "plus" merchandising can pay off at point of sale. This is particularly true if you—like Cheltenham House Products Co. of Philadelphia—have a feature that deserves special attention.

Sales have increased steadily on its Roquefort Dressing since the company began to use a "Cel-O-Seal" band to highlight the Red Sheep seal of the Roquefort Association at the top of each package. One quick glance and shoppers know that the bottle contains *genuine* Roquefort Dressing.

Cheltenham House takes pride in its complete family of salad dressings. And each of its other packages, too, is topped off with a colorful neckband seal reading, "Only the finest is . . . Cheltenham House."

Perhaps your product or package has a major sales feature. By using our Free Packaging Service, you can see for yourself how it can be given added impact at point of sale . . . without waste of shelf space, without major packaging changes.

DU PONT
CEL-O-SEAL

CELLULOSE BANDS



BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

Italian Swiss Colony uses bands to accent package personality

An important part of Italian Swiss Colony's merchandising program is the visual point-of-sale tie-in provided by the Swiss boy and girl trade characters.

Widely-recognized, they are featured at the top of each bottle on a snug-fitting "Cel-O-Seal" band. Crisply printed, the neckband seals are also used by the company to stress product purity, proudly proclaim "California Wine."

Italian Swiss officials state that they like the fact that the seals can be hand- or machine-applied, according to the needs

of individual bottling plants.

Package appeal . . . protection . . . production efficiency and economy—all good reasons for considering "Cel-O-Seal" bands for your glass packages!



"Plee-Zing" label is coupon

"Plee-Zing," Inc., of Evanston, Ill., uses a "Cel-O-Seal" band for double duty on its tomato juice decanters. The band serves as the label and as a premium cut-out coupon.

For mail-in purposes, the neckband is easily removed from the package . . . eliminates the fuss sometimes associated with conventional glued-on coupons. Customer reaction to this feature has been extremely complimentary, company officials have indicated.

Hand-applied, the bands carry complete labeling information in clear, sharp printing. Featured at the top of the package on eye-catching bands, "Plee-



Zing's" premium offer receives maximum impact, can be localized to special areas if needed.

Your premium offers and tie-in promotions can also be spotlighted at the top of every package on an attractive Du Pont "Cel-O-Seal" cellulose band.

FREE PACKAGING SERVICE: See how "Cel-O-Seal" Bands can help your packaging program. Send us a labeled container. Our packaging specialists will band it, make recommendations, return it for your inspection. No charge, no obligation. Write: E. I. du Pont de Nemours & Co. (Inc.), "Cel-O-Seal" Bands—(C), Wilmington 98, Del. "Cel-O-Seal" Bands are also sold by Armstrong Cork Co., Lancaster, Pa.

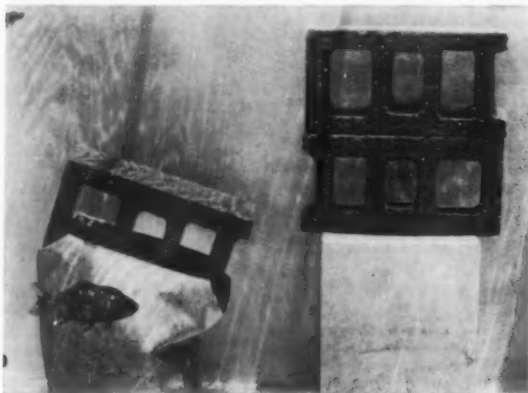
Equipment and materials

Polypropylene film now available

Proplene—a polypropylene packaging film that is reported to be an excellent barrier to grease and oil as well as to offer excellent folding endurance, machinability, printability and long shelf life—is commercially available from Ludlow Papers. The company reports also that it is introducing other unsupported thermoplastic films made by a modified extrusion process, called Flex-L, that is claimed to produce outstanding clarity and gloss, and improved film properties through biaxial orientation. Ludlow's Proplene—which can be used in overwrap, bag-making, blister-packaging and skin-packaging applications—is made from Hercules Powder Co.'s "Pro-Fax" polypropylene. Ludlow Papers, Inc., Needham Heights, Mass.

Wax-impregnated corrugated board

A wax-impregnated corrugated board with excellent resistance to moisture and humidity is being offered by Hinde & Dauch. Designated M/R, the board is suggested for use in the manufacture of shipping cartons for fruit, produce or other perishable foods that are cooled with water or ice during shipment and



storage. The accompanying photo illustrates a laboratory test conducted by the company to determine the moisture resistance of its new board. A standard corrugated shipping container and one made of the wax-impregnated board were submerged in a fish tank, with the former weighted down by one 32-lb. cement block and the latter by two blocks of the same weight. After 9 min. submersion, the standard carton, thoroughly saturated, began to crumple. The wax-impregnated carton (right) showed no signs of weakening after more than an hour of submersion, the company says.

Field tests have also been conducted. These tests, in which mature peaches were packed and shipped for long distances in cartons made of the strong, protective board, showed similar good results, the supplier says. Hinde & Dauch, Div. West Virginia Pulp & Paper Co., Sandusky, O.

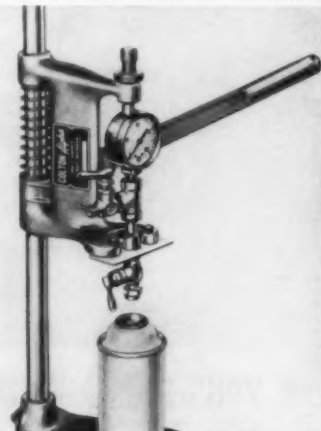
For protection of fragile or scuffable items

Designed for the protection of fragile or scuff-prone products during shipment or other handling is 3M's "Scotch-Tred," a non-marring, skid-resistant material with a pressure-sensitive adhesive base and a resilient, bonded-particle surface. The flexible material (45 to 50 mils thick) is suggested by the company for use as re-usable divider cushioning, applied to critical areas of such products as major appliances to minimize in-crate surface damage. It also can be applied to nested fragile items, such as ceramics, to prevent nicking or scratching, the supplier points out. Its pressure-sensitive adhesive base is protected until use by a thermoplastic-film backing that reportedly serves as an effective barrier against moisture. The

fire-resistant material is available in three colors—beige, black or gray. Designed also for use as a floor or wall covering, it comes in $\frac{3}{4}$ -by-24-in. strips, 96-ft. rolls ranging from 4 to 36 in. wide, and 9-by-9-in. tiles. Custom shapes can be provided. Minnesota Mining & Mfg. Co., 900 Bush Ave., St. Paul 6.

New line of single-station aerosol fillers

Available from Arthur Colton Co. is a new line of three single-station machines for small-lot production and laboratory crimping and gassing operations on aerosol containers. Illustrated is the Colton - Alpha



Model 1401, a gasser and tester designed for use with nitrogen propellents. In operation, a hose connection is made to the nitrogen pressure vessel. A crimped container and valve assembly is placed on the work base and a handle on the side of the unit is pulled down, causing a valve adapter to engage the container valve. Both gas valves (under the pressure gauge) are opened and the container is filled with

propellent to the proper pressure level. After closing the valves, the handle is raised and the lower valve is opened and closed to bleed the pressure gauge to a reading of a few pounds under expected can pressure. Then the handle is lowered again to engage the container and the lower valve is opened to test in-can propellent pressure by reading the pressure gauge. The other two units in the company's new line are the Model 1302 air-operated vacuum crimper and the Model 1501 gasser and shaker for use with carbon dioxide and nitrous oxide propellents that are mixed into the product. Arthur Colton Co., 3400 E. Lafayette Ave., Detroit 7.

Non-curling foil label stock

Cochran Foil is marketing a laminated aluminum-foil label stock that is claimed to eliminate the curling problems associated with printing, cutting or applying foil labels. According to the supplier, its new "Kurl-Kure" label stock stays flat over a wide range of temperature and humidity conditions. Cochran Foil Corp., Sub. The Anaconda Co., Louisville, Ky.

Stable packaging adhesive

An adhesive for bonding paperboards, claimed to have increased stability when agitated by machinery glue rolls (thereby avoiding balling and adhesive breakdown), is available from United Shoe Machinery. The resin-based adhesive, designed for use in carton-forming machines, reportedly produces a strong, fast-setting bond under pressure. Other cited features of the adhesive, which is shipped dry for mixing with water, are: absence of unpleasant odor, good resistance to moisture, "invisible" drying and easy clean-up. United Shoe Machinery Corp., Packaging Dept., 140 Federal St., Boston 7.

All-steel bag-packaging machine for foods

A stainless-steel bag-packaging machine, designed for packing such products as meat, poultry, cheese and frozen foods into thermoplastic-film bags or pouches, is offered by Errich International. The company's Model 813 accommodates bags 4 to 9



"Munsingwear" Advertising Manager Roger Holt and Vice President C. Morgan Aldrich with self-selling packages of VISQUEEN film.

"VISQUEEN film slashed 'Munsingwear' Packaging costs and gave us better packages than any other film"

Industry Leader Tells Why VISQUEEN Film Is Superior To Any Other Polyethylene

"We package 147 different men's and boy's wear items in VISQUEEN film. Experience proved VISQUEEN film's superior quality cuts packaging costs through the entire channel of distribution—and gives us a far superior package than any other film of any kind.

"VISQUEEN film is more uniform in thickness. No thin, weak spots. We get a far stronger package. One that stands the gaff in package filling, transit, storage and self-selection stores. Our package breakage is at an almost irreducible minimum.

"VISQUEEN film made a real show-case package for 'Munsingwear'. This 'Q' film adds clarity and sparkle. No other polyethylene can match VISQUEEN film in this respect. Customers go for the see and feel quality of VISQUEEN 'Q' film. Retail sales increase. Packages handle and display easier, are stocked easier and faster at point of sale.

"Greater economy of VISQUEEN film is another reason for our choice. But even if it wasn't the most economical—we'd still prefer VISQUEEN film for the extra benefits we get from its superior quality.

"For instance: Bags open easier. Fill faster. Don't break in filling. We get more speed in the operation. Unequaled printability is an advantage to us and our supplier—Clear Bag Co. Ink does not flake off.

We need this superior printability because we cross-merchandise with sales messages on each bag. These packages really 'talk'.

"And the quality of VISQUEEN film is consistently superior. It's dependable. If anybody wants a better package—at less cost—I'd say they'd do well to start with VISQUEEN film."

For The Most Experienced Help In Packaging, Write Or Use The Information Request Tag Below



VISQUEEN film—first and foremost polyethylene film.

A product of the long experience and outstanding research of **VISKING COMPANY** Division of **UNION CARBIDE Corporation**.
P. O. Box 1410, Terre Haute, Indiana.

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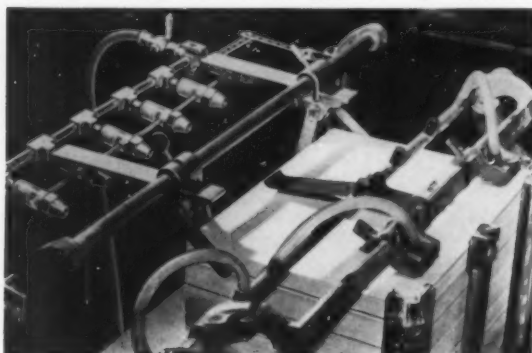
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Equipment and materials

in. wide and 5 to 30 in. long. A patented baffle system which controls the air flow automatically opens and loads up to 1,200 bags per hour, according to the supplier. The steel used in the machine is nonmagnetic, to facilitate opening of polyethylene bags, which are prone to static blocking. Other cited features include product guides for easier loading, adjustable air generator and a specially contoured feeder tray. *Errich International Corp., 5 E. 35 St., New York 16.*

Air-blower static eliminator

Simco has developed a new machine—consisting of a series of ionizing air nozzles mounted on a metal frame—that is claimed to offer a positive method for separating and neutralizing sheets of paper (coated or uncoated) or plastic which



are fed from stacks. Each of the nozzles is fitted with static eliminators energized by a small power unit. Air is supplied to the nozzles at pressure ranging from 15 to 50 p.s.i. (adjustable by opening or closing a master stopcock mounted adjacent to the series of nozzles). The air-nozzle assembly is located behind and slightly above the feed pile. Ionized air from the nozzles flutters the top few sheets, neutralizing static charges as the sheets are separated and eliminating any tendency for more than one sheet to be picked up at a time, the company says. *The Simco Co., Lansdale, Pa.*

Spout assembly assures smooth product flow

American Flange & Mfg. has added a new item to its "Tri-Sure" line of spout assemblies designed for use by packagers of liquid products in metal pails. It is a self-venting, clinch-on, pull-up spout that reportedly assures smooth, even flow of light or viscous products. The new 1 3/4-in. spout assembly permits controlled product flow of the pail's contents from beginning to end, the supplier says. *American Flange & Mfg. Co., 30 Rockefeller Plaza, New York 20.*

Giant six-color flexographic press

What is claimed to be the largest single-impression flexographic press ever built for printing on packaging films has been delivered to Regency Plastics Co., Woodside, N. Y., by Hudson-Sharp. The six-color press prints web widths up to 75 in., with print repeats up to 63 in. The unit, which has 8-in. inking rolls rather than the company's standard 5- and 6-in. rolls, is claimed to offer hairline register between colors and in print repeats. Other cited features include: hydraulic plate-cylinder throw-outs; continuously operating, splashproof ink fountains; running register peripheral and longitudinal plate-cylinder adjustments; close infeed and out-feed web tension at all running speeds; constant-register print repeats from roll to roll, and a heavy-duty, flying-splice unwind and rewind that permits non-stop operation of the press. *Hudson-Sharp Machine Co., Sub. Food Machinery & Chemical Corp., Green Bay, Wis.*

Double-laminated foil carton

Designed for improved insulating qualities, Excel-O-Therm's new ice-cream container is fabricated of kraft board laminated on both sides with aluminum foil. According to the company, its new carton insures more rapid hardening of the product, offers better protection during storage and practically eliminates product loss through dehydration. Other cited advantages of the re-usable container include: absence of paper taste, better keeping qualities from store to home and elimination of warm ice cream around the edges of the carton. *Excel-O-Therm Container Corp., Lexington, Ky.*

Machines for orienting polyvinyl chloride

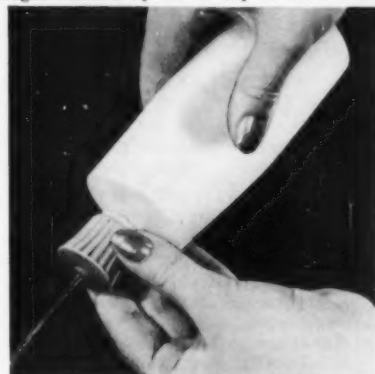
Machines designed for lateral and longitudinal orienting of polyvinyl chloride and similar packaging films are being made available by Inta-Roto. The film is first stretched in the lengthwise direction (at an approximate ratio of 1:3) on the longitudinal machine; then in the crosswise direction (at an approximate ratio of 1:2) on the lateral machine. According to the supplier, temperature controls on both units permit the correction of films of uneven caliber. *The Inta-Roto Machine Co., Richmond 3, Va.*

Imprinter for continuous-feed wrappers

Gottsch's Model P-11 "Wrap-A-Printa" is a new attachment designed for roll-leaf imprinting on continuous-feed wrapping and bag-making machines. The company's previous model was intended for use on intermittent-feed machines. The new unit operates like an automatic typewriter to make impressions of code dates or other legends through a ribbon of leaf material. According to the supplier, the attachment makes crisp, rub-proof impressions and also eliminates ink-drying problems on such hard-to-print stocks as polyethylene, cellophane, aluminum foil and waxed paper. Gottsch claims that 1,000 code-date impressions can be obtained with 5 cents worth of leaf, available in various colors. *Adolph Gottsch, Inc., Hillside, N.J.*

'Pull-push' closure for squeeze bottle

Elimination of the harassment of lost or misplaced caps is one of the advantages claimed by U. S. Cap & Closure for its permanent, two-piece "pull-push" polyethylene closure for squeeze bottles containing liquid products. The closure consists of an outer and an inner section. To use, the outer, reversed - taper flare cap is pulled up, effecting an opening through which the contents of the bottle can be squeezed out (as shown). When the outer cap is pushed down against the shoulder of the bottle, an effective seal is achieved, according to the supplier. *U. S. Cap & Closure, Inc., 77 W. Washington St., Chicago 2.*



Electronic batching scale aids accuracy

A constant-feed batching scale claimed to be accurate within 0.1% for wet or dry materials fed at rates of 5 lbs. to 5 tons per hour has been introduced by Thayer. According to the supplier, this accuracy stems from the use of an electronic closed-circuit control. Since the control has no mechanical parts to wear down during usage, high accuracy and constant speed control can be maintained over long periods, the supplier claims. *Thayer Scale & Engineering Corp., Pembroke, Mass.*

Micrometer for thin-gauge materials

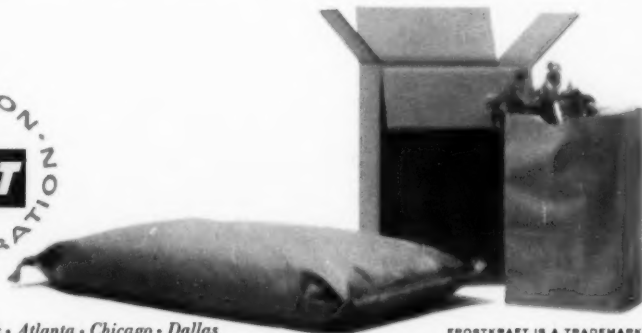
A new micrometer caliper, developed for checking or comparing the thicknesses of packaging materials where exact readings are necessary, has been introduced by E. J. Cady. Called

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Equipment and materials

the Cady 10000 Micrometer, it reportedly offers precise readings down to 0.0001 in. on cellophane, polyethylene and other films, as well as on laminates, paper, foil, tissue, sheet stock and coated materials. The instrument consists of a cast base with 4-in. throat. Its anvil shaft is coil-spring loaded, with compensation for uniform pressure from the $\frac{9}{16}$ -in.-diameter anvil. According to the company, pressure p.s.i. meets all industry standards. The anvil, raised by lever for insertion of the material to be calipered, has an adjusting gear for resetting the indicator blade on the instrument's direct-reading dial to exact zero when required. *E. J. Cady & Co., River Forest, Ill.*

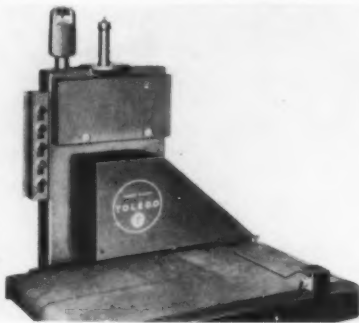
Packet former, filler and sealer

Brown Filling Machine's Multiple Packeter Model II is designed for filling powders or liquids into packets made of film, foil, paper, laminates and other heat-sealable materials. Operating at a rated speed of up to 300 packets per minute, the machine forms, fills and seals packets ranging in size from 1 by 1 in. to 8 by 8 in. Electric eyes register printing on both sides of the packets, which can be delivered individually or in perforated or jointed strips. The unit—which is interchangeable for all-powder, all-liquid or simultaneous liquid-and-powder operation—has divided hoppers to permit mixed filling of two different powders. Other cited features include highly accurate filling and sharp product cut-off control to eliminate leakers, stringers and faulty seals in packets containing free-flowing or viscous liquids. *Brown Filling Machine Co., Fitchburg, Mass.*

Automatic checkweigher for bulky packages

Toledo Scale's new Model 9460 automatic checkweigher, designed to handle packages or bags weighing between 25 and 200 lbs., is claimed to be accurate within 0.1%. Equipped with

a belt-type, motorized - conveyor or weigh system, the unit accommodates approximately 20 packages per minute, checking them in motion against a predetermined weight. An under-over-zero indicator mounted atop the machine provides a visual check of the weight of items in relation to the desired weight. This attachment is quickly adjustable to different package weights, the supplier says. Also available is an electric pilot-light unit, here shown mounted on the left side of the checkweigher. It consists of five color-coded lights to show the weight zone (OK, OK-heavy, OK-light, over, under) into which the item being weighed falls. *Toledo Scale Co., 1097 Telegraph Rd., Toledo 1, O.*



Packaging-tape dispenser

A manual "feather-touch feed" packaging-tape dispenser that will handle any size tape from 1 to 4 in. wide has been introduced by Seal-O-Matic. The unit features a "subway" feed, tape guides on the cutting strap and an aluminum water box. *Seal-O-Matic Dispenser Corp., 169 Murray St., Newark.*

Premixed urethane-foam components cut costs

Lower handling costs and reduced possibility of mixing errors are the advantages claimed by Allied Chemical for its new two-part package containing premixed components of Plaskon urethane foams. The two types of foam, PFR 500 and PFR

501, can be foamed or sprayed in place for such packaging applications as void fillers and insulation. The premixed components come in two separate steel drums. According to the supplier, controlled density from batch to batch—formerly a technical operation—thus becomes merely a matter of mixing the ingredients from each drum in predetermined quantities to obtain a lightweight, tough foam. *Allied Chemical Corp., Plastics & Coal Chemicals Div., 40 Rector St., New York 6.*

Improved bread-wrapper end labels

Designed to offer easy opening and secure reclosure of bread wrappers is Pollock's "Zip-Open" strip-perforated end label. It is another indication of a recent trend toward making the standard bread wrapper more convenient for consumers to use (see MODERN PACKAGING, Aug., 1958, p. 136). The label is



glued on both sides, but the center portion is unglued so it can be easily stripped off along its parallel perforation lines to expose the ends of the bread wrapper without tearing it. According to Pollock, opening is made even more easy by new methods of folding and closing the ends of the bread wrapper, which require a minor change (or no change at all) on the automatic wrapping machine.

The company reports also that improvements in paper stock, printing inks and cylinder and production techniques have led to the development of its new "Spot-Lite" series of end labels for bread wrappers. According to the supplier, the paper stock used is whiter and brighter, to provide a better base for the printing inks. It also is claimed to be more opaque, to minimize show-through of colors on the wrapper ends. Further details, including a brochure containing label samples, are available from the company. *Pollock Paper Corp., Sub. St. Regis Paper Co., 2236 Cockrell St., Dallas 22.*

High-speed counting machine

Designed for use by packagers in the pharmaceutical field is Delta's new Model E universal counting machine. It reportedly is capable of counting up to 12,000 bottles of 100 tablets or capsules per hour. Available with two to 10 orientation channels, the unit handles the complete range of compressed tablets or capsules with extreme accuracy and offers one-minute change-over, the supplier claims. In operation, the items are fed from a supply hopper to a conveyor belt traversed with special orientation guides. From the belt, they pass through a detector unit and a flow divider, then are funneled individually into bottles. As each bottle accumulates the desired quantity, tablet flow is automatically interrupted by the flow divider. When all bottles are full, the machine positions a new group of bottles under the filling spouts and the cycle is automatically repeated. *Delta Engineering Corp., Melrose, Mass.*

Continuous, uninterrupted gluing

FMC's Model 405 gluer reportedly can glue more than 7,000 wraps on standard shirt boxes (13½ by 9¼ by 2 in.) without interruption. The unit has two compartments for mixing and feeding. As glue is being fed to rollers from the bottom section, a second supply is mixed in the top—to be transferred by a valve when needed. Thermostatic control plus constant circulation of exposed [Continued on page 167]

Packaging with Kodapak Sheet peps up party selling!



There's something about a toothbrush that makes people want to test the bristles; something too, that repels them once a brush has been touched. Hence, a display technic developed for home selling by Stanley Home Products, Inc. ! Now, handsome 30-gauge white Kodapak II nests a whole line of colorful brushes, while a 30-gauge *clear* Kodapak II cover lets customers see and select . . . *but never touch.*

Durable and long-lasting, the case keeps sparkling. "And," reports Valley-National Corp., Milldale, Conn., who produced the display for Stanley, "manufacturing costs are low." For further information about this and other uses of versatile Kodapak Sheet, call or write our representative.

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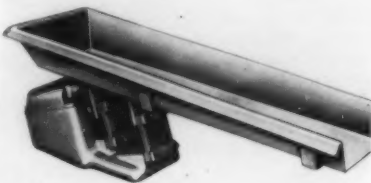
Equipment and materials

[Continued from page 164]

glue provide optimum control of consistency, the supplier claims. According to the company, its new unit also eliminates the need for open glue pans, separate cookers, manual handling of prepared glue, down time and manual stirring. *Food Machinery & Chemical Corp., Packaging Machinery Div., 4900 Summerdale Ave., Philadelphia 24.*

High-speed, variable-rate feeder

Syntron's Model F-010 electromagnetic vibratory feeder reportedly offers fast, high-capacity, rate-controlled feeding of bulk materials in weighing, blending, mixing, packaging and other processing operations. Its driving mechanism produces 3,600 vibrations per minute to assure free flow of hard-to-handle bulk materials, the supplier claims. A rheostat control permits adjustment of the feed rate from a slow dribble to a maximum rated capacity of three tons per hour. The unit's standard flat-pan trough measures 5 in. wide and 24 in. long. Other shapes and sizes are available on order. Maintenance-free operation is afforded by a dust-tight enclosure for the electromagnet drive and by the absence of mechanical parts, says the company. *Syntron Co., Homer City, Pa.*



Metallic coating for aerosol cans

Crown Cork & Seal announces that it has developed a method for applying on aerosol cans a metal coating such as those used on large-surface products like automobiles, office furniture and communications equipment. First application is for a hair spray marketed in South Africa. The finish reportedly is uniform on sides, top and bottom; provides a metallic luster; is fadeproof, and is resistant to moisture and abrasion. The metallic coatings can be produced in a variety of colors and intensities. *Crown Cork & Seal Co., Inc., Can Div., 9300 Ashton Rd., Philadelphia 36.*

New bottle-inspection machine

Mayer Production Engineers has introduced its new Model B-2 bottle-inspection machine. Among the cited improvements in the device are: an automatic bottle gate that allows only rejected bottles to be discharged from the conveyor; electronic indexing that affords rapid and accurate adjustment for bottle changes and positive maintenance of adjustment; time-delay ejection control for greater accuracy in timing the rejection arm, and an accumulating table and guides for smoother discharge of rejected bottles and reduced breakage. *Mayer Production Engineers, Inc., Lincoln Park, N.J.*

Continuous printing on polyethylene film

A new flexographic printing press that reportedly prints polyethylene film in two or more colors without the need for stopping or reducing speed when joining rolls is available from Beasley, French & Co. The English-made Befanco press also is claimed to print at speeds of 450 ft. per minute. It is equipped with unit driers, a rotating mirror and web-scanning device, static eliminator, tension control and automatic pasters on both unwind and rewind ends. To permit rapid drying of the ink (as well as rapid cooling to prevent melting or distortion of the film), the unit driers blow heated air onto the web, quickly exhausting it through the unit so that heating is limited to about 6 in. of web travel, the supplier says. For continuous, high-speed press operation, each reel

stand carries two independently driven rolls of film. As one roll of film nears its end, an automatic operation causes the second roll (prepared and pasted) to rotate about its spindle until it attains the same speed as the web. At this point, a light appears on the control panel, the web is brought down onto the pasted roll, a joint is made and the empty reel is cut free by a swinging knife. A similar operation is performed at the rewind end. *Beasley, French & Co., 110 E. 31 St., New York 16.*

New line of aerosol crimpers

Five new aerosol-crimping machines have been introduced by John R. Nalbach Engineering. The company's Model I-HC is a semi-automatic unit for crimping cap and valve assemblies in 1-in.-diameter openings in aerosol cans. Requiring line pressure of 90 to 100 lbs. per sq. in., it operates at a rated speed of 20 to 35 containers per minute. Also available are four automatic crimpers—Models 4 H.C., 8 H.C. (non-vacuum heads on both), 4 H.V.C. and 8 H.V.C. (vacuum heads)—which operate at rated speeds of up to 300 containers per minute. Among the reported advantages of these machines are complete accuracy, rapid change-over, long service life and low maintenance cost. *John R. Nalbach Engineering Co., 6139 W. Ogden Ave., Chicago 50.*

Vacuum-pressure powder filler

A powder-filling machine designed for use in laboratories and in limited-production packaging operations is offered by Perry Industries. The Perry Accofil Lab Gun, as it is called, employs a vacuum-pressure principle patented by Lederle Labora-



tories. It consists basically of a cylinder and adjustable piston combination into which a vacuum-pressure cycle is introduced. In operation, the piston is adjusted to the exact fill required (up to several pounds). Then the cylinder is inserted into a bulk powder container, where it picks up a pre-selected amount of powder. The operator inserts the cylinder into the container to be filled, then presses a foot pedal to deposit the slug into the container. According to the company, the unit is accurate within 1% of pre-set weight. The unit is suggested for use in packaging a wide range of powdered products, including pharmaceuticals, cosmetics, foods, insecticides, seeds, photographic powder and aerosol-dispensed items. *Perry Industries, Inc., 6401 Third Ave., Brooklyn 20.*

One-piece, rigid polyethylene drum

A rigid polyethylene drum for storage and shipment of chemicals and similar dry or liquid products is offered by Plastineers. Marketed under the name Polyflexon, the one-piece, seamless drum has 3/16-in. walls and a capacity of 38 gallons. Measuring 18 by 35 in., the drum is produced on an injection-molding machine. According to the supplier, the lightweight drum compares in cost with steel drums and is resistant to many corrosive acids or chemical solutions. *Plastineers, Inc., 605 W. Broadway, Minneapolis.*

Printing unit for shipping containers

Available from M-H Standard is the Morrison Printer Model T-29, a conveyORIZED printing machine that is reported to be suited for printing corrugated shipping cartons or other flat,

Equipment and materials

knocked-down containers. The offset gravure unit, claimed to offer economy for small to medium-sized runs, prints up to three colors. According to the supplier, long service life and superior print clarity are achieved by using an 18-in.-diameter application cylinder. Cylinder changes can be made without down time for disassembly. Other cited features of the unit include: a specially developed printing surface unaffected by ambient temperature and humidity changes; continuous repeat print to 26 in. wide, and printing speed of 48 ft. per minute. *M-H Standard Corp., Conveyorized Finishing Systems Div., 515 Communipaw Ave., Jersey City 4.*

Electronic heat sealer

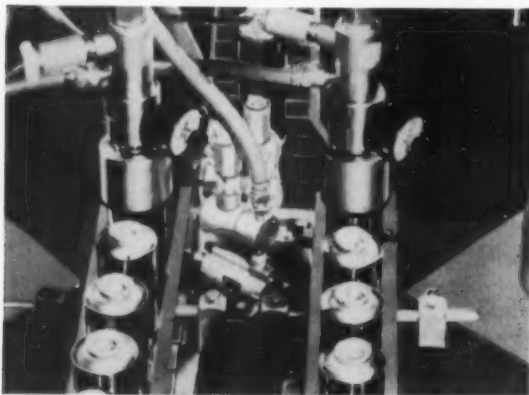
Custom-built, high-frequency generators for heat sealing such thermoplastic packaging films as saran and vinyl are offered by New Jersey Electronic Co. Already in commercial use, the generators are designed for attachment to standard pouch-forming and filling machinery (see "A Triumph for Film," *MODERN PACKAGING*, July, 1958, p. 130). Heat for sealing the film is produced by high-frequency current which passes between the sealing dies to the film, without heating the dies. According to the supplier, generators can be made available to accommodate almost any length of end seal or long seal. *New Jersey Electronic Co., Passaic, N.J.*

Automatic regulation of web tension

The development of "Cons-Ten-Trol," a device for automatically regulating the tension of webs of paper and other packaging materials in unwinding to slitter-rewinders, is announced by Black-Clawson's Dilts Div. The attachment reportedly can be added to any existing slitter-rewind machine that has air-operated friction brakes on the unwind section. *Black-Clawson Co., Dilts Div., Fulton, N.Y.*

Aerosol pressure tester and venter

Available from Robins Engineering is an apparatus for testing pressure and venting gas in filled aerosol containers. The unit, which is offered in two models (CA-1—shown here—for aerosol packages with dip tubes on valves and CA-2 for aerosol



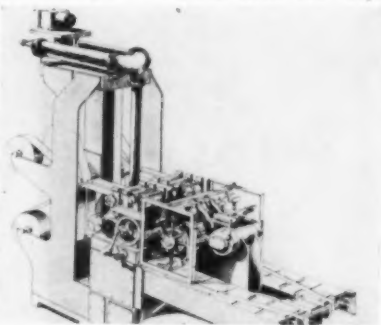
packages with upside-down valves), is claimed to have these four advantages: it vents gas without discharging the product; it automatically fills the dip tube to any desired level; it automatically tests pressure as containers travel along the assembly line; it automatically rejects containers which are not pressurized within the acceptable limit. According to the supplier, the electrically powered device—which has direct-reading dials—can be installed on any standard pressure-packaging line and can reject up to 60 containers per minute. Reduced labor costs are another cited benefit of the unit, which can be installed in single or double rows, according to individual needs. *The Robins Engineering Co., North Haven, Conn.*

Non-toxic PVC stabilizer

A non-toxic stabilizer for use in polyvinyl chloride food-packaging materials is available from Ferro Chemical. Called Ferro 763, the white paste compound has been accepted by the U. S. Food & Drug Administration, the company reports. It is suggested for use in concentrations of one to two parts per 100 resin along with USFDA-accepted epoxy plasticizers. Claimed to be excellent for long-term stability, the material reportedly can be used at temperatures up to 385 deg. F. *Ferro Corp., 4150 E. 56 St., Cleveland 5.*

Speedy former and wrapper for margarine

The latest addition to Girdler Process Equipment's "Votator" line of packaging machinery is a unit that forms and wraps 1/4-lb. prints of margarine at a rated speed of 5,000 to 6,000 lbs. per hour. According to the company, it also forms and wraps whipped margarine (in which six standard-size prints make a full pound) at speeds of up to 3,400 lbs. per hour. Change-over from one type of margarine to another requires only a few minutes, the supplier claims. Cited advantages of the machine, in addition to high speed, include precise product-weight control and minimum-maintenance operation. *Chemetron Corp., Girdler Process Equipment Div., Louisville 1, Ky.*



Electric sewing unit for bag closure

A new belt-conveyor sewing unit for closing bags has been introduced by the Dave Fischbein Co. Called the Fischbein Bag Closer Model B-5, it reportedly stitches at the rate of 30 ft. per minute in a two-stage operation controlled by foot pressure. The first stage starts the movement of the conveyor belt to carry the bag to the sewing head and the second stage starts the sewing operation. The electrically operated unit features an adjustment wheel for precise setting of the sewing head, according to the supplier. *Dave Fischbein Co., 2720 30th Ave., Minneapolis 6.*

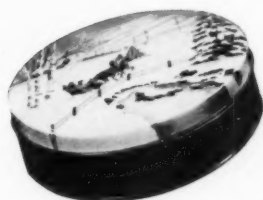
Air evacuator, sealer for film pouches

A device for evacuating air from multiple-wound thermoplastic-film pouches (filled with cheese or other product) and then sealing the pouches is offered by Specialty Equipment. Called Evac-Seal, the machine handles pouches up to 20 in. wide. In operation, a flat evacuating needle is inserted into the filled pouch (open end on the sealing bed), after which hold-down bars are lowered, automatically starting a vacuum pump and collapsing the pouch to the product. Then the heating bar is lowered, automatically ejecting the needle and sealing the pouch. According to the supplier, the entire operation can be performed in approximately 30 seconds. *Specialty Equipment Co., West Bend, Wis.*

Flexographic and letterpress printers

Designed for printing on flat, round, tapered, raised or recessed articles are Cosom Engineering's two new Cosomatic Printers. Available in flexographic or letterpress models, the units are capable of printing on three different levels—with up to three different ink colors—simultaneously, the company claims. Either printer reportedly can print cylindrical items with speed and accuracy. Two types of rotary attachments also are available. For high-production work, the supplier offers a multiple-spindle indexing rotary attachment that can be loaded and unloaded while it is printing. A single-spindle attachment is designed for short runs or for use where frequent changes in part sizes occur. According to the company, improvements on its two new printers assure constant accurate register and minimize wash-up time. *Cosom Engineering Corp., 6012 Wayzata Blvd., Minneapolis 16.*

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This actual underwater photograph shows the strength of new M/R corrugated boxes. Regular corrugated box (left) collapsed in nine minutes under one concrete block. M/R box (right) stayed strong and firm under two blocks—was still standing straight after one hour.



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Corrugated Boxes

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Plants and people

R. Wells Simmons has succeeded John B. Bowman as gen. sales mgr. of Ekco-



Simmons

Alcoa Containers Inc., Wheeling, Ill. Mr. Bowman has transferred to Ekco Products Co. of Chicago, joint owner, with Aluminum Co. of America, of Ekco-Alcoa. Mr. Simmons had been associated with Alcoa since 1930, most recently as asst. district sales mgr. in the parent company's Chicago office.

Art Moses has been appointed mgr. for industrial sales, which includes accounts in all markets except that of baked goods. He has been with Ekco-Alcoa since its inception in 1955.

Union Bag-Camp Paper Corp., New York, has opened its new product-development laboratory in Hoboken, N.J. According to the company, it will be "devoted to the diagnosis and development of packaging available to American industry." The laboratory houses product-development sections corresponding to the company's various product divisions, including specialty bags, corrugated boxes, multiwall bags, bleached and processed papers and board. Each section reportedly is able to duplicate the specifics of a customer's present method of packaging, handling and shipping his product. Under the direction of Lawrence Ross, the new facility also provides customer consultation, development work on new products and new uses for established products.

J. M. Moon has been elected exec. v.p. of Signode Steel Strapping Co., Chicago. He will also continue to direct the sales activities of the company.

In his new position as gen. sales mgr., R. S. Jones will be responsible for planning and sales direction of the packaging and industrial divs. of The



Jones



Hickman

Dobeckman Co., Cleveland, Div. The Dow Chemical Co. Mr. Jones, a past pres. of The National Flexible Packaging Assn., has been with the firm since 1932. R. A. Hickman has been named to the new post of mgr. of market planning. He will also act as liaison with Dow on new products. W. W. Clark II continues as mgr. of the packaging div., handling an expanded group of markets for the company's products. B. P. Kinter has been appointed Southwestern regional mgr., with headquarters in St. Louis. P. M. Smith succeeds him as dis-

trict mgr. for the packaging div. in the same office. Northwestern regional sales mgr., with headquarters in Chicago, is J. E. Powers. R. A. Stump has been named Central regional mgr., with headquarters in Cleveland.

American Can Co., New York, recently opened its 90,000-sq.-ft. coil-steel processing plant in Los Angeles. The new can-making facility, which processes huge coils of steel strip into standard can-making plate, has an annual capacity of more than 90,000 tons of plate, according to the company. Rated output capacity of the firm's expanded West Coast plant now is two billion metal cans and paper containers a year.



Kimple

Louis T. Kimple was recently elected exec. v.p. of Dixie Wax Paper Co., Dallas, Tex. In this new post, he becomes chief executive of the company. Prior to his promotion, Mr. Kimple had held the position of senior v.p. in charge of mktg. He is also pres. of Dixie of California.

Lee Augustine has been elected pres. and treas. of The Printing Machinery Co., Cincinnati. Clarence Brestel has been named v.p. and Francis L. Dale is secy. of the company.

As part of a continuing program for development and growth, Champion Paper & Fibre Co., Hamilton, O., has created four new operating divisions: pulp and paper mfg., paper converting, paper distribution and timber products. Gen. mgrs. of the new divisions are respectively: v.p. Karl R. Bendetsen, Henry W. Rigby, H. W. Suter and A. W. Nelson, Jr. Mr. Rigby also has been named exec. v.p. for corporate development, in which capacity he will oversee Champion's interests in producing and converting subsidiaries and will assist the pres. of the company in the planning and negotiation of new enterprises.

Other Champion promotions include: Herbert T. Randall, to senior v.p.-licensing and special projects; Robert C. Haynie, to v.p. for planning.

National Distillers & Chemical Corp., New York, has acquired the Kordite Div. of Textron, Inc., converter of plastic packaging materials, which will be operated as an independent subsidiary with no change in personnel.

Poster Packaging, Inc., is the name of a newly organized corporation, created to specialize in "low-cost, transparent packaging for foods." The corporation, located at 3401 Division St., Chicago, has acquired the machinery and equipment of the packaging div. of Poster

Products, Inc., Chicago. Pres. of the new company is Robert Burke, pres. of Poster Products. L. J. Burke is board chairman. Richard V. Minogue becomes v.p. and director of sales, and J. Donald Bostrom is v.p. in charge of research, development and production.



Hitchings

A new sales mgr. for "Genetron" refrigerants and aerosol propellants has been appointed by Allied Chemical & Dye Co.'s General Chemical Div. He is Fred C. Hitchings, succeeding Lee D. Callans, who has been named mgr. of the division's market-surveys dept. Mr. Hitchings has been on the sales staff of the New York organization for 24 years.

Miller Container Corp., Louisville, Ky., is now wholly owned by The Mead Corp., Dayton, O. It will be operated as a div. of Mead Containers, Inc., a sub. of Mead. The newly acquired concern manufactures corrugated shipping containers.

Mead also has recently purchased a substantial interest in Lamex, Inc., Norcross, Ga., manufacturer of polyethylene products for the textile, food and paper industries and for agriculture.



White

William P. White, Jr., has been appointed gen. mgr. of package engineering for Continental Can Co., New York. He will work with the sales and research-and-development depts. of the company's several divisions to determine the requirements and design of new packaging machinery to be used with Concan's packaging materials. He was formerly gen. mgr. of the firm's Hazel-Atlas Glass Div. and previously was v.p. of operations for the White Cap Co., a Concan subsidiary.

William R. Bolton was recently promoted to gen. sales mgr. for containers by Plax Corp., Hartford, Conn., maker of blow-molded plastic containers and oriented-polystyrene film and sheet. A. K. Thorn is now gen. mgr. for film and sheet sales. E. S. Marsh succeeds Mr. Thorn as district sales mgr. in Chicago. Mr. Bolton's former position as sales mgr. for the New York district has been taken over by Gilbert B. Luce. Plax has established two new sales offices, one in Philadelphia with Russell E. Ames in charge and the other in Cincinnati with John W. McLaughlin supervising.

Warner-Lambert Pharmaceutical Co., Morris Plains, N.J., has established a new dept. to coordinate the merchandis-

Ahead with **GLASSINE**

New...
another striking
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Glassine Protection

Here's news in protective packaging! For longer freshness, best flavor, and customer convenience, National Biscuit Company has adopted glassine innerwraps for the new Ritz cracker "Stack Pack." The newly designed carton with its revolutionary fractional inner packaging, contains three cylinders of Ritz crackers, each wrapped in waxed* wax-laminated glassine. Rhinelander Glassine papers are a part of this progressive development.

This functional glassine development was selected for the new "Stack Pack" because it is a most effective moisture barrier, provides breakage protection and recloses easily and positively. Versatile Rhinelander Glassine or Greaseproof is the economical answer for many packaging applications . . . Works smoothly on high speed packaging equipment.

Write for full information and samples, stating your particular application.

*Waxed and printed grades available through leading converters.



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SILICONE
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FREE
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**LOOK FOR YOUR
FREE BONUS
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**KEEP YOUR MOLD
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IMS Silicone Spray is specially designed to eliminate sticking problems in the molding and in the food and packaging fields. With the exclusive all-metal, fast acting spray head you get finer atomization every time—conserves costly silicone and goes much further than many other cans using cheaper spray heads—Remember, look for your FREE BONUS card in every box.



PRICES

\$2.00
single can

\$18.00
per dozen

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per gross

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Plants and people

ing and packaging activities of its Family Products Div. **Thomas J. McEwan** has been chosen to head the new dept. as director of merchandising. Mr. McEwan was formerly with the Lambert-Hudnut Mfg. Laboratories in Lititz, Pa., as asst. director of purchasing and package engineering. **Donald Q. O'Brien** has been named to assist Mr. McEwan.

A new multiwall packaging laboratory, designed to develop technical improvements in paper shipping sacks, has been established at Charleston, S. C., by **West Virginia Pulp & Paper Co.**, New York. The facility will be operated as a unit of the company's new Multiwall Bag Division. Manager of the laboratory is **Richard P. Kessler**, formerly director of packaging research for **Arkell & Smiths**, Canajoharie, N.Y.



Quinn

Francis T. Quinn has been promoted to mgr. of package development by **White Laboratories, Inc.**, maker of pharmaceutical products, Kenilworth, N.J. Mr. Quinn, who has been with the company since 1925, is credited with the development of many vitamin products and techniques for manufacturing medicinal gum preparations. His most recent position was mgr. of production planning.

Dominion Paper Box Co., Ltd., Toronto, Ont., has appointed **Lorne W. Ballance** as sales mgr. Mr. Ballance, who joined the company's sales staff in 1947, had been asst. sales mgr. since 1953. He has served two terms as chairman of the Design Council of the Packaging Assn. of Canada.

Vertrees Young has been elected a director of **Crown Zellerbach Corp.**, San Francisco. He succeeds **Joseph M. Arndt**, retired. Mr. Young, who was a v.p. and gen. mgr. of mill and timber operations of the **Gaylord Container Div.** in St. Louis, has retired from active management duties, but will continue his association with the firm on a consulting basis as well as on its board. Mr. Arndt also will serve as a consultant to **Crown Zellerbach**.

Auto-Vac Co., Bridgeport, Conn., producer of machinery for forming sheet plastic, has been acquired by **National Tool Co.**, Cleveland. According to an announcement from the company, the transaction initiates **National Tool's** new diversification program and marks the entry of this precision-machine-tool maker into the plastics field.

After 33 years of service, **Albert S. Allen** has retired as special rep. of the sales development and tech. service section of the Film Dept. of **E. I. du Pont de**

Nemours & Co., Wilmington, Del. Mr. Allen, considered an authority on food and produce packaging, received the **Charles W. Hauck Award** in 1954 from the **Produce Packaging Assn.** for "significant and outstanding contributions to the produce-packaging industry." He is credited with helping to develop many new packaging applications for cellophane and other packaging films.

The sales operations of **Butler Paper Products Co.**, Toledo, O., operated as a



Mather Davis

separate div. for the past year, have now been combined with those of **Dairypak, Inc.**, Cleveland. Under the re-organized set-up, **Harry P. Mather** becomes

gen. sales mgr. for paraffined cartons. **Robert R. Davis** takes over the newly created post of field sales mgr. Mr. Mather transferred to **Butler** last year from **Dairypak's** South Central district. Mr. Davis was formerly sales-prom. mgr. for **Butler**.

Three new district mgrs. also have been appointed. **Richard D. Evans** will manage the Midwest district from Chicago. **Glenn N. Rupp** will operate the Central district out of Toledo and **Al Reinberg** will handle the Eastern district from New York.

John Dale, Ltd., maker of collapsible metal tubes, London, England, has acquired **Impact Extrusions, Ltd.**, Middlesex, which also manufactures collapsible tubes. **R. W. D. Carr**, **J. W. G. Collins** and **S. G. H. Davis** of **John Dale** have been named to the board of **Impact Extrusions**. **O. J. Bruun**, board chairman of **Andersen & Bruun's Fabriker A/S**, Copenhagen (Dale's associate company), becomes chairman of **Impact Extrusions**. **E. R. Robinson** has been named sales mgr.



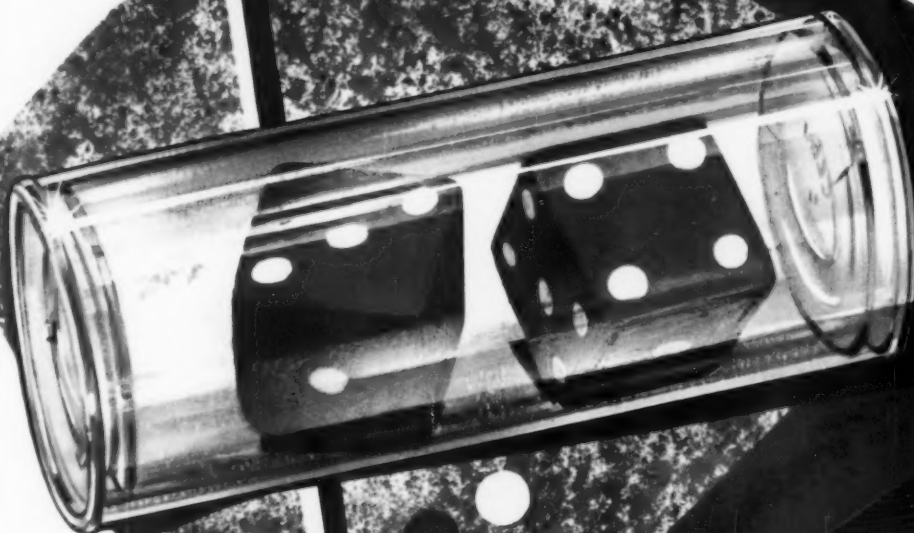
Huflage

Cochran Foil Corp., sub. **The Anaconda Co.**, Louisville, Ky., has named **Carl W. Huflage** to the post of v.p. He will direct the administration of **Cochran's** sales and marketing activities, involving national distribution of aluminum sheet, foil and laminated foil. Active in the aluminum-foil field since 1925, Mr. Huflage joined **Cochran** in 1950.

Fletcher Cochran has joined **Donald Palmer, Inc.**, flexible packaging manufacturer and distributor of New Orleans. He was formerly tech. service rep. for **Crown Zellerbach Corp.**

An agreement has been reached regarding the purchase of **Growers Container Corp.**, Salinas, Calif., by **St. Regis Paper Co.**, New York. **St. Regis** now holds 31% of **Growers'** capital stock. **Growers** operates two plants for the production of corrugated shipping containers.

St. Regis also has changed the name



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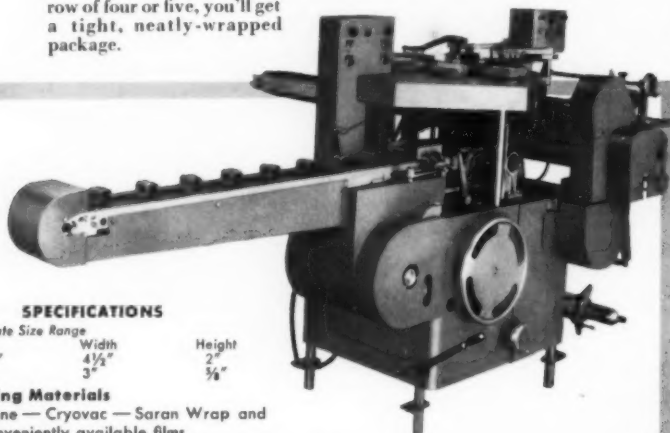


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only a card and Machine Wrapped at High Speed

With the development of the Crompton & Knowles Model F-frankfurter wrapper you can now get maximum cost reduction and package attractiveness while wrapping at high speeds with the use of only a supporting card.

Even or odd frankfurter counts can be handled by the C&K Model F and, regardless of whether you're wrapping four on four, five on five, or a single row of four or five, you'll get a tight, neatly-wrapped package.



SPECIFICATIONS

| Approximate Size Range | | |
|------------------------|--------|--------|
| Length | Width | Height |
| Max. 6 1/4" | 4 1/2" | 2" |
| Min. 4" | 3" | 3/4" |

Wrapping Materials

Cellophane — Cryovac — Saran Wrap and other conveniently available films.

Speed: Drive Unit — Variable: 27-75 Packages Per Minute.

Drive: 1/2 H.P. Motor

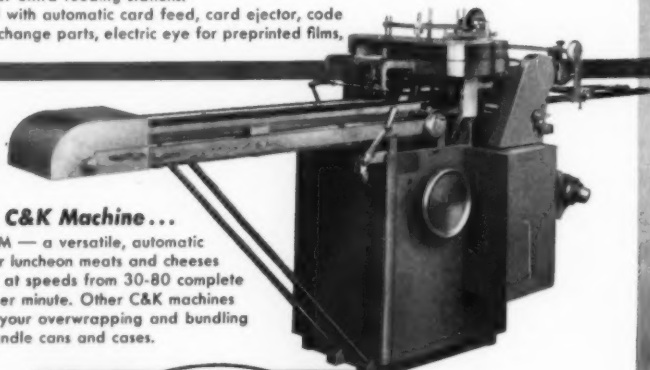
Floor Space: 144" Long, 73" Wide, 55 1/4" High.

Weight: 1800.

Feed Conveyor: Standard Infeed Conveyor has 12 stations for feeding. Infeed Conveyor extensions available for extra feeding stations.

Furnished with automatic card feed, card ejector, code dater, size change parts, electric eye for preprinted films,

The new C&K Model F high speed frankfurter wrapper.



Another C&K Machine...

The Model M — a versatile, automatic wrapper for luncheon meats and cheeses of all types at speeds from 30-80 complete packages per minute. Other C&K machines can handle your overwrapping and bundling needs or handle cans and cases.



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| Cleveland | New York |
| Los Angeles | St. Louis |
| Chicago | Toronto |
| | Montreal |

Plants and people

of its Kraft Div. to Kraft & Converting Products Div. Reginald L. Vayo, v.p., is in charge of the new div., which consolidates the sales activities of the former Kraft Div. with those of Rhineland Paper Co. and The Gummed Products Co., St. Regis subsidiaries.

Sigmund Was, formerly v.p. in charge of sales of Valve Corp. of America, Bridgeport, Conn., has resigned. Mr. Was, associated with VCA for the past five years, reports that he will establish his own company as a representative of manufacturers of aerosol and other aerated products. He will continue to maintain his offices at 10 E. 49 St., New York.

Armstrong Cork Co., Lancaster, Pa., has established an Office of Economic



Matamoros Watkins

and Marketing Research. According to the company, it is designed to expand Armstrong's activities in those areas and is part of an overall plan to find

a larger number of profit-making opportunities. Albert G. Matamoros becomes gen. mgr. of the new office. William J. Watkins has been named mgr. of marketing research. Gray Playter is mgr. of advtg. research and Warren J. Wittreich is marketing-research psychologist.

Carton Craftsmen, Inc., Chicago, and National Carton Corp., Joliet, Ill., merged recently to form a new folding-carton organization under the Carton Craftsmen name, to be located at 5701 W. Ogden Ave., Cicero, Ill.

The St. Louis office of The Dobeckmun Co., Div. The Dow Chemical Co., is now located at 10 S. Brentwood Blvd., St. Louis 5.

The Edlaw Packaging Co. Glendale, Long Island, N.Y., recently set up the first packaging line in its newly constructed pharmaceutical division. The contract packager reports it is installing a unit-pack machine for powder filling at 700 pouches per minute.

Erich International Corp., New York, has opened a complete, one-stop, bagging-equipment center at 35 W. 36 St. in New York. According to the company, its bagging-equipment center shows all the equipment needed for packaging merchandise in bags or pouches.

Container Corp. of America, Chicago, has begun construction of a \$2,500,000 [Continued on page 179]

SALES BAIT



METEOR



CELENO



PRIME



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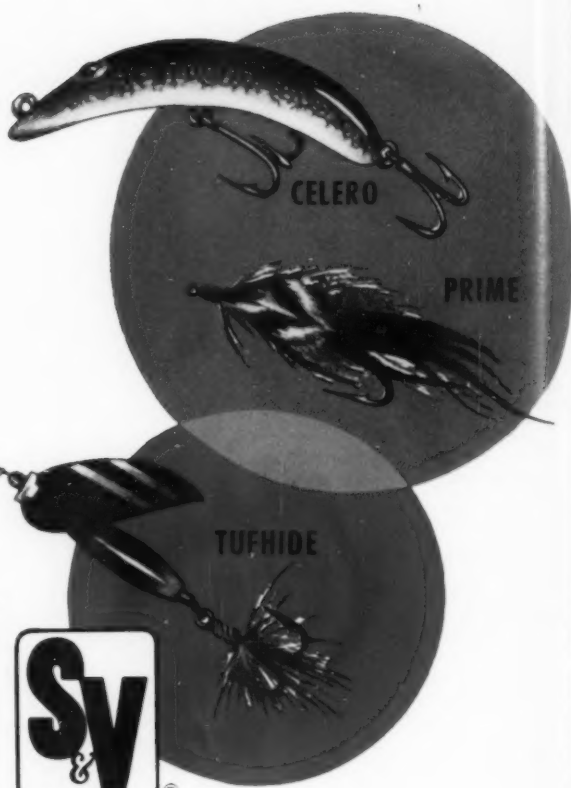
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You'll get optimum performance, top efficiency
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gives you more impressions per pound! Tackle the problem
of getting more for your ink dollar by ordering
a dependable S&V ink! You'll find they make it easier
to land bigger profits while you're bringing in greater sales!

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Canadian Affiliate: Sinclair and Valentine Company of Canada, Ltd. 240 Madison Avenue, Toronto 7, Canada

Plants and people

[Continued from page 176]

folding carton plant in the Dallas-Ft. Worth area. The new plant will have 180,000 sq. ft. of production space.

The Edwin J. Schoettle Co., Philadelphia, will build a folding-paper-box plant in Montgomery County, Pa.

Triangle Package Machinery Co., Chicago, has opened a West Coast office and warehouse at 460 Veteran Ave., W., Los Angeles. Jack Reining is Western district mgr.

Emhart Mfg. Co.'s Hartford-Empire glass-container machinery div. has opened a new branch office at 2677½ E. Main St., Columbus, O. It will be managed by James E. Harrington.

Franklyn Folding Box Co. has moved all manufacturing operations to 35-11 Prince St., Flushing 54, N.Y.

The Washington Div. of Container Laboratories, Inc., has been expanded and is now located at 6210 Kansas Ave., Washington 11, D. C. Various consulting services in the packaging and materials-handling fields will be located there.

Reynolds Metals Co.'s new multi-million-dollar headquarters in Richmond, Va., are being opened this month.

Pexco Bag Mfg. Co. has transferred to larger quarters at 201 Morris St., Toledo, O. The company makes film bags.

Royal Mfg. Co., Prescott, Ariz., has opened a plant in Chicago. Plastic-container production started in August at 2711-23 N. Pulaski Rd.

Sanford Plastics Corp. has moved its manufacturing facilities to a new and larger plant at Charles St. and New Brunswick Ave. in Matawan, N.J.

Workman-Powell, Inc., formerly of New York City, is now located at 101 S. Bergen Pl., Freeport, L. I. The company designs, prints and converts packaging material.

Ink-manufacturing operations have started at the new Secaucus, N.J., plant of Sinclair & Valentine Co. New York.

Promotions

Everett G. Temple: to gen. mgr., Philadelphia, Eastern Folding Carton Div., Container Corp. of America, Chicago. He succeeds Henry G. Van der Eb, now v.p. of mktg. in the folding-carton division of the company.

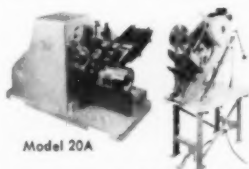
Samuel F. Schillaci: to v.p., Plax Corp., Hartford, Conn.

Rodger C. Derby: to product supervisor, Carolina Paper Sales Group, Rie-



Get better looking, lower cost package identification and decoration with a **MARKEM METHOD**

Hand stamping, using decals, stenciling — such methods can not only reduce the attractiveness and sales appeal of your package, but consume valuable time as well. "Outside printing" requires large inventories . . . causes waste from obsolescence . . . can result in production delays as well. The time and money saving way around these obstacles — with added quality besides — is a Markem Method working in your plant. This is a combination of the right machine, type and specialty ink to identify or decorate your packages at the rate you need, as you need them. Whether you want to screen decorate designs on molded plastics . . . print pressure sensitive tape with product name, trademark and directions for use . . . imprint variables on bakery labels, set-up or flat folding boxes, lithographed cans or lids — there's Markem equipment and a proven method for the job. The two machines shown are typical of more than a dozen used in the packaging field; type-wheels, or masterplates and typebars, make imprint changes fast, easy; 10,000 currently available specialty inks offer virtually any combination of color, drying speed and special property you want. In many cases, Unitized Markem printing heads can be combined with packaging equipment.



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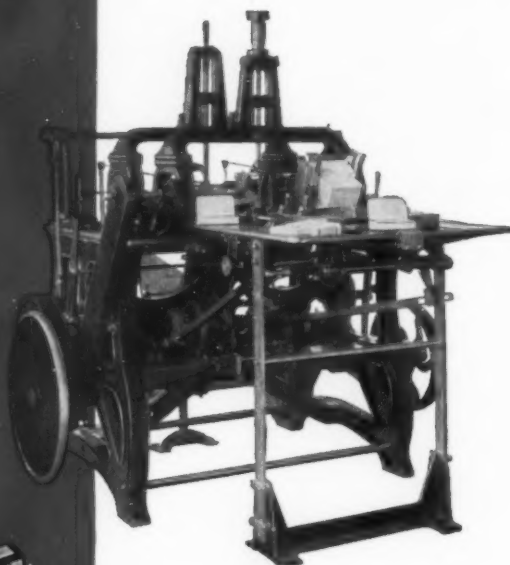
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Plants and people



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... for the Brightwood Box Machine. If you have one box size or 100 sizes, you can make them profitably on the Brightwood. Well squared, perfectly glued boxes are formed in one operation from flat printed blanks — one-piece hinged cover, two-piece telescope or lid, trays, tapered cartons, etc. — for a multitude of uses — screws, hardware, cigarettes, bakery goods, candy, cheese, playing cards, wax paper, etc. Write **US** today and get the facts.

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James C. Hale Co., Los Angeles, San Francisco • R. S. Gold, Toronto

gel Paper Corp., New York. John B. Shields: to product development engineer, packaging materials sales. Frederick V. Watson: to product supervisor, packaging materials.

Carl Jensen: to sales administrator, Eastern Div., a newly created post, Milprint, Inc., Milwaukee.

Jay D. Sherman: to field sales mgr., Reed-Prentice Div., Package Machinery Co., East Longmeadow, Mass.

Jett D. Thomas: to sales supervisor, frozen-food packaging, New York regional office, Western-Waxide Div., Crown Zellerbach Corp., San Leandro.

Jack P. Jordan: to consolidated district sales mgr., New York, Crown Cork & Seal Co., Philadelphia.

Charles B. Kinnan: to product sales mgr., Dairy Closure Div., Standard Packaging Corp., New York.

Louis R. Lawson, Jr.: to Eastern district mgr., kraft paper sales, West Virginia Pulp & Paper Co., New York.

Charles Franklin Gray: to tech. rep., UCON aerosol propellant, Union Carbide Chemicals Co., Div. Union Carbide Corp., New York.

M. Tenney Hulett: to newly created post of market research mgr., Borden Foods Co., Div. Borden Co., New York.

James P. Donovan: to v.p., Continental Box Co., Houston, Tex., maker of shipping containers.

Richard B. Tupper: to v.p. in charge of mktg. services and asst. to the pres., Design Associates, Ltd., New York, packaging-design firm.

Richard B. Rooney: to mgr., gummed sealing tape and box tape sales, The Gummed Products Co., Troy, O. John Coyner: to mgr., foil laminated and gummed printing paper sales.

S. E. Carroll: to gen. mgr., adhesive products dept., Swift & Co., Chicago. He succeeds E. R. Paul, retired. Warren N. Gould: to mgr., adhesives products dept., Los Angeles. He succeeds Arthur A. Palm, now mgr. of Swift's adhesives sales service on the West Coast.

Appointments

John Bonini: from asst. mgr. of product development, Marathon, Div. American Can Co., to director of product development, The Gardner Div., Diamond Gardner Corp., Middletown, O.

Keith D. Steffee: from Butler Paper Products Div., Dairypak, Inc., to asst.

[Continued on page 183]

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THE NAME IS FAST-FLO! It's Graco's light-weight air-powered pump that transfers fluids fast, "direct-from-drum"!

Just stick the Fast-Flo in the drum, attach plant air line. Open gasoline type valve at end of hose to start pump. Close valve, and pump stops. One-man operation, with absolute control at the valve.

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WOW!

No more drum or bag handling

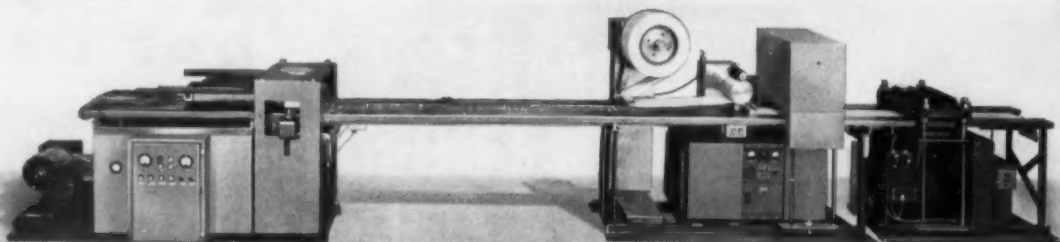
YOU CAN STOP . . . unloading drums — storing — opening—bailing out glue—moving to gluing areas — handling empties. YOU CAN STOP . . . unloading and stacking bags — mixing — the resultant mess and dirt. YOU CAN STOP waste and handling costs.

If you use adhesives in quantity — and, if savings of 35% interest you; Phone or write FINDLEYS for details. More on pages 194, 221, 229.

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6 automated steps SPEED BUBBLE PACKAGING

without overheating contents or warping bubble and card

Newest and fastest bubble packaging machine on the market . . .

1. Feeds roll of plastic.
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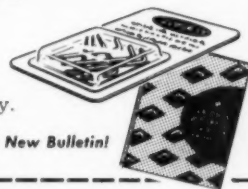
Here's why sales boom, yet packaging costs less . . .

Merchandise is completely visible . . . stimulates impulse buying. Package conforms to shape of articles . . . easier to display. Merchandise remains clean and intact . . . less likely to be stolen. Bubble packages are extremely economical to produce . . . are durable and moisture-proof . . . save space and weight in shipping and storage.



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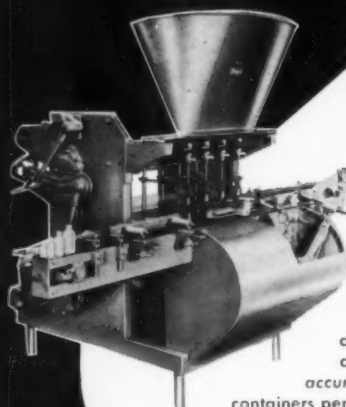
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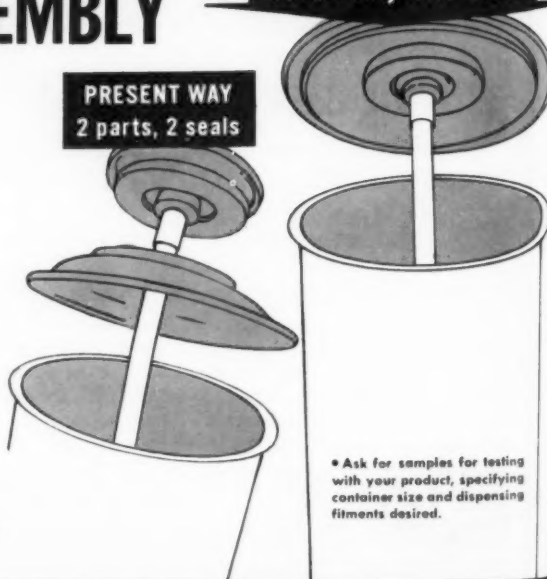
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PRESENT WAY
2 parts, 2 seals



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with your product, specifying
container size and dispensing
fitments desired.

Plants and people

(Continued from page 180)

sales mgr., protective packaging div., Michigan Carton Co., Battle Creek, Mich. He will aid in developing the sales program for Michigan Carton's new ice-cream carton.

Joseph E. Lang: to district sales mgr., Hoboken, N.J., plant, Hinde & Dauch, Div. West Virginia Pulp & Paper Co., Sandusky, O.

Robert Wicklund: from sales mgr., pulp-and-paper div., Potlatch Forest, Inc., to mgr. cartonboard sales, East Texas Pulp & Paper Co., Silsbee, Tex.

R. Taylor: from mgr., Eastern div., Industrial Adhesives, Ltd., to div. sales mgr., Griswold Engineering, Ltd., maker of packaging machinery, Montreal, Canada.

Andrew J. Zelle: from director of packaging research, Connecticut Chemical Research Corp., to consultant member of engineering staff, Valve Corp. of America, Bridgeport, Conn. Mr. Zelle will work on new production and packaging techniques.

H. I. Silversher: to tech. director, International Coatings Co., Culver City, Calif. The company makes coatings and adhesives for paper, film, foil and other materials.

Obituaries

Dr. W. Hale Charch, director of the Pioneering Research Laboratory, E. I. du Pont de Nemours & Co., Wilmington, Del., died July 25 at his home in Chadds Ford, Pa. He was 60. Dr. Charch directed the research that led to the development of moistureproof cellophane in 1927, two years after he joined the company. His later research work helped bring about Du Pont's "Orlon" acrylic fibre and "Dacron" polyester fibre.

George W. Donald, 60, died July 25 after a long illness. At the time of his death, he was director of sales for the Western-Waxide Div., Crown Zellerbach Corp., San Leandro, Calif. Mr. Donald, who joined the company in 1928, was appointed director of sales in 1956.

Charles E. Maskrey, who retired last spring as Midwest sales mgr. of Knox Glass, Inc., Knox, Pa., died on July 16. He was 68. Mr. Maskrey had been associated with Knox in various sales capacities since 1924.

F. C. Chenault, retired mgr. of the Memphis bag plant and sales div. of Bemis Bro. Bag Co., St. Louis, died July 23. Mr. Chenault joined Bemis as a salesman in 1916. He had been mgr. of the plant from 1947 to 1957.

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PA-106

For your information

The Packaging Machinery Mfrs. Institute reports that its 1959 trade show will be known as the Packaging Machinery Mfrs. Institute Show of 1959. In previous years, through 1958, the show was called the Packaging Machinery and Materials Exposition. According to W. B. Bronander, Jr., pres. of PMMI, the change in name was made to identify the show more closely with the Institute, as well as to emphasize the fact that it is basically a packaging-machinery exposition. The show will be held at the New York Coliseum, Nov. 17-20, 1959. Members of the show committee, in addition to Mr. Bronander, are: Harold Mosedale, Package Machinery Co.; K. M. Peterson, Pneumatic Scale Corp.; W. R. Huguenin, Stokes & Smith Co., and K. B. Hollidge, Arthur Colton Co.

R. G. Macdonald, since 1927 secy.-treas. of the Technical Assn. of the Pulp & Paper Industry, has been appointed to the newly created position of exec. secy.-treas. P. E. Nethercut, who joined TAPPI in 1957, becomes asst. to Mr. Macdonald. Founded in 1915, the group has grown in membership from 700 to 9,000.

John G. Kain, who has been in the folding paper box industry more than 20 years, has been named asst. director of the Containers and Packaging Div., U. S. Dept. of Commerce, Washington. Mr. Kain is pres. and treas. of the Star Box & Printing Co., and also exec. v.p. and treas. of Security Carton Co. and Paper Specialty Corp. He has served on various committees of the Folding Paper Box Assn. of America.

A resolution in favor of standard sizes for packaged commodities was adopted unanimously by state and local enforcement officials at the 43rd National Conference on Weights and Measures, held June 9-13 in Washington, D. C. The resolution cited the fact that the average consumer is unable to compare values of competitive products with regard to quantity because of the variety of odd sizes of packages available. Among the proposals made at the conference (in which an entire session was devoted to packages and labeling) was a recommendation that Sec. 26 of the Model Law on Weights and Measures be amended to read as follows: "That butter, oleomargarine and margarine shall be offered and exposed for sale and sold by weight only in units of $\frac{1}{4}$ lb., $\frac{1}{2}$ lb., 1 lb. or multiples of 1 lb., avoirdupois weight." Keynote speaker at the conference was Secretary of Commerce Sinclair Weeks. The next conference will be held June 8-12, 1959, in Washington.

Ray Kirvin becomes director of research and development for the Kraft Paper Assn., succeeding Edwin T. Gibson, resigned. Objectives of the re-

search and development program, as outlined by KPA pres. S. Douglas Fleet, are: "to find new applications and new uses for kraft paper, and to help this product attain its full potential of usefulness in industrial shipping, packaging and consumer fields."

"Profit Packaging With Boxmaster" is the title of an 18-min. sound-color film offered by United Shoe Machinery Corp. In story format, the motion picture tells how users of set-up boxes can



In this scene from United Shoe Machinery's new film, a box-blank supplier demonstrates the new Boxmaster box-making machine to a manufacturer prospect.

save time, storage space and money by producing their own rigid boxes from flat, die-cut blanks. Presented on the management level, the film shows Boxmaster machinery in actual factory use. Bookings are being handled by United's advertising dept., 140 Federal St., Boston 7.

The Flexographic Technical Assn. reports that its formal organization meeting will be held at New York's Biltmore Hotel on Sept. 26, rather than Sept. 23, as previously announced. According to Franklin Moss, of Mosstype Corp., chairman of the new association, FTA has been created to promote the technical advancement of flexography. (See MODERN PACKAGING, Aug., 1958, p. 154.) It will function as a clearing house for the exchange of technical information, the solution of technical problems and the inauguration of research projects.

Several new research reports are being made available to the packaging industry by the U. S. Dept. of Commerce. A 22-page booklet, "The Development of a Non-adhering, Chemically Foamed-in-Place Polyurethane Cushioning Material for Packaging Purposes," describes the Air Force's work on such a material that will not adhere to the mold or packaged item after it is foamed in place. A 27-page report titled "The Strength of Glass" includes a discussion of methods for determining the breaking strength of glass, in which selected levels of probability for failure are emphasized, rather than average

strengths. Copies of these reports, at 75 cents each, can be obtained from the Office of Technical Services, USDC, Washington 25.

An estimated 15,000 packaging executives are expected to attend the 7th Canadian National Packaging Exposition, which will be held Nov. 4-6 at the Exhibition Grounds in Toronto. According to the Packaging Assn. of Canada, sponsor of the show, approximately 85% of available exhibit space has already been sold to 134 exhibitors. Charles W. Stephens, pres. of PAC, reports that many of the show's exhibits will reflect packagers' desires for more effective

Events

Sept. 15-19—Instrument Society of America, 13th annual instrument automation conference, Convention Hall, Philadelphia.

Sept. 16-18—National Paper Trade Assn., fall meeting, Conrad Hilton Hotel, Chicago.

Sept. 29-Oct. 3—National Hardware Show, Coliseum, New York.

Sept. 30-Oct. 2—Technical Assn. of the Pulp & Paper Industry, 9th testing conference, General Oglethorpe Hotel, Savannah, Ga.

Sept. 30-Oct. 2—Fourth Military-Industry Packaging & Materials Handling Symposium, Dept. of Commerce Auditorium, Washington, D. C.

Oct. 5-8—Packaging Machinery Mfrs. Institute, annual meeting, French Lick Sheraton Hotel, French Lick, Ind.

Oct. 8-10—Industrial Designers Institute, design materials show and annual conference, Sheraton-East Hotel, New York.

Oct. 13-15—Packaging Institute, 20th annual forum, Edgewater Beach Hotel, Chicago.

Oct. 14-16—Society of Industrial Packaging & Materials Handling Engineers, 13th annual national industrial packaging and handling exposition, Chicago Coliseum.

Oct. 15-17—Point-of-Purchase Advertising Institute, first national members' meeting, Hotel Claridge, Atlantic City.

Oct. 18-21—American Society of Industrial Designers, 14th annual design conference & meeting, Bedford Springs, Pa.

Oct. 20-22—Technical Assn. of the Pulp & Paper Industry, 13th plastics-paper conference, Sheraton-Kimball Hotel, Springfield, Mass.

Oct. 26-29—National Frozen Food Distributors Assn., 1958 frozen-food merchandising convention, Statler Hotel, New York.

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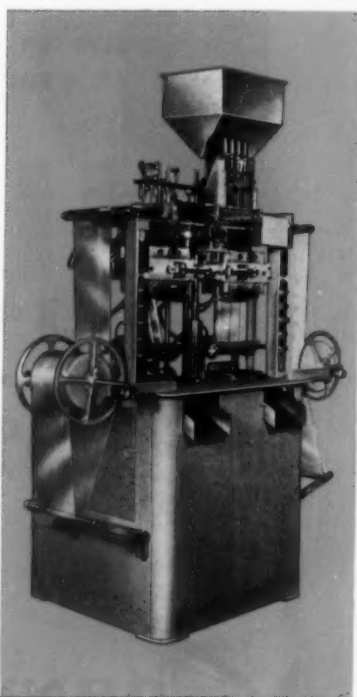
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materials, processes and techniques to reduce packaging costs. The 1958 Package Design and Display Competition will be held concurrently with the exposition. Further data and advance registration cards are available from the association at 1 St. Clair Ave., W., Toronto, Canada.

The Folding Paper Box Assn. of America has made available a carton-salesman's kit comprised of two market-research studies in the food field. "Packaging Practices in the Food and Grocery Industry" is based on a survey of food manufacturers, and "Packaging's Role in More Profitable Food Retailing" is an examination of retail stores. The kit can be obtained in quantity by contacting FPBA at 222 W. Adams St., Chicago 6.

Bert H. Cooper of Kalamazoo Paper Co. has been elected first pres. of the Paper Technology Foundation, Inc. Tom G. Fletcher of Fletcher Paper Co. is v.p. Recently established at Western Michigan University, Kalamazoo, the foundation's purpose is to provide financial assistance by industry to the university's continuing program of paper technology. (See MODERN PACKAGING, May, 1958, p. 260.)

Alvin A. Abramson of Central States Paper & Bag Co. has been elected pres. of the Industrial Bag & Cover Assn. Other officers elected at the group's recent eighth annual meeting in Montauk, N. Y., are: v.p.—A. L. Park of Bemis Bro. Bag Co.; admin. officer—Philip O. Deitsch, who begins his ninth year in that post. Harry M. Hanson of Kennedy Car Liner & Bag Co. has retired as pres. of IBCA after two years in office. He was named to the association's board of directors.

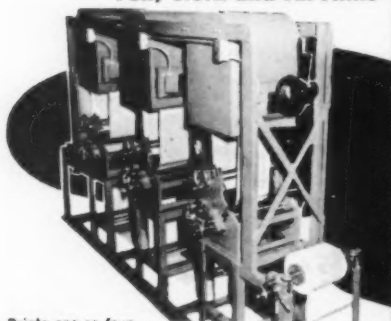
"Four decades of progress in the soft-drink industry" is the theme of the 1958 annual convention of the American Bottlers of Carbonated Beverages, to be held Nov. 17-20 in Atlantic City. The event will be conducted in conjunction with the International Soft Drink Industry Exposition. Keynote speaker for the ABCB convention will be Wesby R. Parker, pres. of the Dr. Pepper Co.

The Printing, Packaging & Allied Trades Research Assn. (PATRA) recently opened the new packaging extension of its research laboratories in London, England. According to the British group, the new extension is equipped for a complete series of tests simulating the hazards of shipping and climate. In addition, apparatus is available for measuring the gas transmission of packaging materials, for determining the water-vapor permeability of barrier

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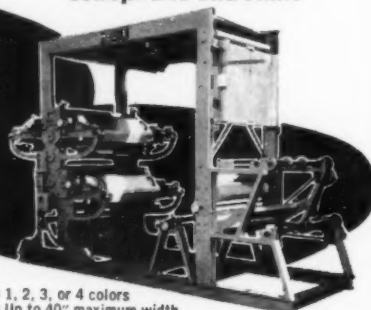


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materials and for estimating shelf life. The packaging-research laboratory now is engaged in three main projects: the study of shipping hazards; the measurement of cushioning properties of various packaging materials, and the cutting and creasing of carton board.

The American Paper & Pulp Assn. has published a 78-page booklet entitled "A Guide to Career Opportunities in the Paper Industry," designed to interest students in careers in this important field. Part I presents the over-all story of the pulp, paper and board industry. Part II describes its many job possibilities, ranging from production, research and sales to accounting and personnel. Copies may be obtained without charge from the American Paper & Pulp Assn., 122 E. 42 St., New York 17.

The 9th Testing Conference of the Technical Assn. of the Pulp & Paper Industry will be held Sept. 30-Oct. 2, at the General Oglethorpe Hotel, Savannah, Ga. Highlights of the event include technical sessions, open testing committee meetings and an exhibit of testing instruments. An address on "Test Methods and Instruments Needed for Paperboard" will be made by L. K. Burnett, The Ohio Boxboard Co.

The Tag Mfrs. Institute recently held its 25th-anniversary convention at Absecon, N. J. Included in the week-long program was a report by Wayne E. Davis of Dennison Mfg. Co. on plans for further standardization and technical advances in papers and processes.

The U. S. Dept. of Agriculture has published a 38-page booklet titled "Evaluation of Shipping Containers for Western Lettuce." Data compiled by the marketing-research div. of USDA's Agricultural Marketing Service indicate that a limit of 1½ lbs. of lettuce per 100 cu. in. of space offers the most economic use of fibreboard shipping containers. To arrive at this conclusion, the researchers tested light, medium and heavy packs of lettuce shipped in small, medium and large containers. When less than 1½ lbs. of lettuce were packed in 100 cu. in. of space, bruising averaged under 3%, but space waste was excessive. More than 1½ lbs. of lettuce in the same space resulted in bruising of from 5% to more than 10% of the pack. Copies of the booklet (which contains a number of photographs, charts and tables) can be purchased at 25 cents each from the Superintendent of Documents, U. S. Govt. Printing Office, Washington 25.

National Frozen Food Distributors Assn. will hold its 1958 Frozen Food Merchandising Convention at the Statler Hotel, New York, Oct. 26-29. Among the packaging-supply companies that have signed up for exhibit space are: Armstrong Cork Co.; Continental Can Co.; Crown Zellerbach Corp.; The Dow Chemical Co.; Ekco-Alcoa Containers; Kaiser Aluminum & Chemical Corp.; Marathon, Div. American Can Co., and Pollock Paper Corp.

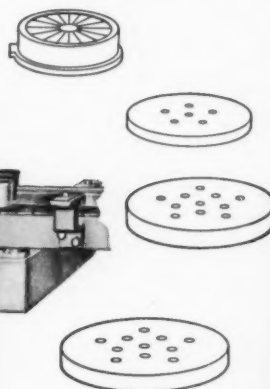
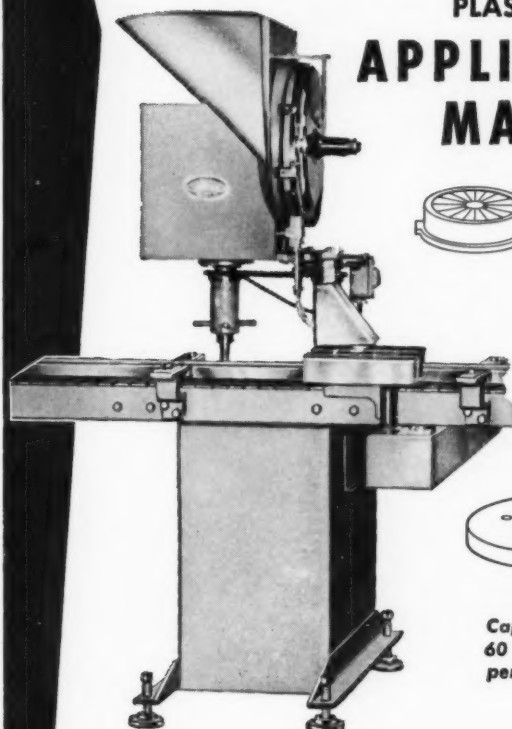


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U. S. patents digest

This digest includes each month the more important patents of interest to those who are concerned with packaging materials. Copies of patents are available from the U. S. Patent Office, Washington, at 25 cents each in currency, money order or certified check; postage stamps not accepted. Edited by H. A. Levey.

Art of Packaging Commodities in Expandable Wrappers, Paul B. Hultkrans et al (to Milprint, Inc., Milwaukee, a corporation of Delaware). U.S. 2,836,941, June 3. The method of packaging a commodity, which comprises initially printing indicia on a selected local area of a wrapper sheet of thermoplastic material, thereafter subjecting only the major unprinted area of the wrapper sheet to sufficient heat to render the heated area expandable.

Box-Shifting Apparatus, Earl Davis (to Purex Corp., Ltd., South Gate, Calif., a corporation of California). U.S. 2,836,943, June 3. Box-handling apparatus comprising means forming a surface for supporting a box, means for endless movement adjacent said box location and operable to engage the box.

Carton-Handling Machine, Arthur C. Schroeder (to Schroeder Machines Corp., Syracuse, N.Y., a corporation of New York). U.S. 2,836,946, June 3. A carton-handling machine comprising: an elongated frame member, a magazine, a carton-packing station, a carton support, a carton-advancing member and an actuating mechanism, cooperating to expand cartons and fold flaps into horizontal closed positions.

Cap-Feeding and Applying Mechanism, Carl L. Day et al (to Crown Cork & Seal Co., Baltimore, a corporation of New York). U.S. 2,836,947, June 3. In a cap-applying mechanism, a cap chute, a supporting bracket, a cap-applying element and means to secure the guide members in adjusted position.

Device for Applying Covers of Flexible Material to Paper Cups and Like Receptacles, Charles C. Austin (to Sutherland Paper Co., Kalamazoo, a corporation of Michigan). U.S. 2,836,948, June 3. A device for applying a disk-like cover to a receptacle having an upwardly facing internal annular shoulder-like cover seat spaced from its upper edge.

Scoring Apparatus, Edwin E. Burroughs (to St. Regis Paper Co., New York, a corporation of New York). U.S. 2,837,012, June 3. In apparatus of the class described, conveyor means for conveying a succession of bag tubes along a common path and in a selected frequency with respect to a scoring station, and means for scoring each tube.

Machine for Assembling Folding-Box Shells and Inserting Liners into the Shells, Edward J. Pagendarm (to Baljak Corp., Wilmington, Del., a corporation of Delaware). U.S. 2,837,013, June 3. A folding-box machine comprising, in combination: first and second die, first and second plungers, first and second

relationship for arresting boxes on said second conveyor in a position in line with second-plunger stroke path.

Device for Folding and Inserting Liners into Folding-Box Shells, Thomas Francis Burke (to Baljak Corp., Wilmington, Del., a corporation of Delaware). U.S. 2,837,014, June 3. A machine for forming liner blanks into box-like form and inserting such formed liners into the bodies of folding boxes.

Sheet-Feeding and Counting Assembly, Victor Jezierski (to Federal Carton Corp., North Bergen, N.J., a corporation of New York). U.S. 2,837,016, June 3. In a mechanism of the type disclosed, the combination with a sheet-delivering and stacking machine, of automatic means to feed a count signal onto the stack at predetermined intervals.

Apparatus and Method for Filling Containers with Liquid, Paul E. Luther, Oakland, Calif. U.S. 2,837,127, June 3. A method of filling containers with liquid which comprises moving a series of containers along a single horizontal plane with their open ends uppermost; moving a plurality of liquid filler valves, each having a sealing head; sequentially lowering said valves to engage the cans; intermittently jarring the liquid in said containers to remove and expunge air pockets, and then raising and closing said valves.

Dropper Assembly, Paul A. Marchant (to Injection Molding Co., Kansas City, a corporation of Missouri). U.S. 2,837,128, June 3. A cap-dropper assembly comprising a pipette having a lower discharge end and an upper engaging end, a flange engaging means and a cap.

Aerosol Valve, Philip Meshberg, Fairfield, Conn. U.S. 2,837,249, June 3. In a valve means for controlling the discharge of a measured amount of fluid under pressure from a container having a tubular measuring chamber, a combined resilient sealing gasket and first valve disk, second valve disk, a valve stem, and a sealing portion.

Pouring Spout for Standard Blanks, Saul Goldstein, San Francisco. U.S. 2,837,254, June 3. In a carton having a rectangular spout opening in one wall thereof with a spout-holding tab, a single blank pouring spout comprising a generally rectangular bottom wall and opposite triangular side walls relatively thicker than the space between the side edges of the said spout-holding tab and the side edges defining the opening.

Pull Tape for Removing Container Covers, Roy Nasello, Brooklyn. U.S. 2,837,263, June 3. A container for potables and other substances, comprising:

a cylindrical hollow two-ply body with an upper open end and a closed lower end, an upper edge, a cap having a downwardly extending peripheral flange and a flexible tape having one end secured to the body adjacent said edge.

Two-Piece Carton With Neck, Arthur Rous (to Federal Carton Corp., North Bergen, N.J., a corporation of New York). U.S. 2,837,264, June 3. A two-piece carton adapted to be formed into a package having a constricted section.

Bag, Adolph Potdevin et al (to Potdevin Machine Co., Teterboro, N.J., a corporation of New York). U.S. 2,837,267, June 3. A bag composed of a single piece of material, said bag comprising a front wall and a rear wall, a gusset and a foldable closure lip at the bottom.


Bag, Adolph Potdevin et al (to Potdevin Machine Co.). U.S. 2,837,268, June 3. A bag blank comprising: two integral panels; a relatively narrow, seam-forming flap along the outer edge of and integral with one panel; an integral flap projecting from the same end of and extending entirely across the other panel; a relatively narrow flap integral with the second-mentioned panel, and a flap integral with the first-mentioned panel and projecting beyond the same.

Package-Knocker Mechanism for Automatic Packaging Machines, Robert T. Hull (to Package Machinery Co., East Longmeadow, Mass., a corporation of Massachusetts). U.S. 2,837,882, June 10. In a packaging machine having a tube former through which material may be fed to a flexible tube formed thereby, clamp means to form a receptacle at the end of the tube and reciprocable means for actuating said clamp means.

Automatic Packaging Machine, Fred J. Bracey (to Package Machinery Co., East Longmeadow, Mass., a corporation of Massachusetts). U.S. 2,837,883, June 10. In a tubular-package-forming machine, means for closing the clamp on the tube, means to then move said clamp to feed the tube, selectively adjustable means to effect withdrawal of a slidable sealing member, means to subsequently complete a full inward stroke of movement of said slidable member and means to open said clamp-closing means.

Container-Feeding Device, John W. Rouse (to American Can Co., New York, a corporation of New Jersey). U.S. 2,838,160, June 10. In a can-runway system, the combination of an inlet runway, a pair of outlet runways, a divider housing, magnetic means for directing cans along a path and means to energize

[Continued on page 193]

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U.S. patents digest

[Continued from page 190]

and thus render said electromagnetic section effective on cans entering said divider housing.

Wire Package and Method of Forming. Robert H. Prindle, Palmetto, Fla. U.S. 2,838,172, June 10. A method of packaging wire or the like, comprising feeding the free end of a wire from a supply axially through a spirally wound coil spring and forming the wire into a generally annular convolution.

Packaging for Fragile Articles. Richard L. Emery (to Keyes Fibre Co., Portland, Me., a corporation of Maine). U.S. 2,838,173, June 10. A molded-pulp packing device for elongated articles, comprising: a sheet having walls, a plurality of elongated ribs, a lateral flange, a series of arcuate notches and a plurality of spaced notches in each of said ribs and in each of said side walls.

Knock-Down Receptacles. Saul K. Wolff (to Wolff Appliance Corp., Long Island City, N.Y., a corporation of New York). U.S. 2,838,197, June 10. A receptacle comprising: top and bottom inwardly facing, channel-shaped, similar symmetrically disposed frames; tie means interconnecting said frames; flanges; bent-back portions, and an adjacent panel having a wall contacting the outer flanges of said frames, said flanges and bent-back portions of the two panels having sliding interlocking engagement and a bottom wall.

Closure Cap for an Insulated Container. Herbert M. Piker (to Hamilton-Skotch Corp., a corporation of Ohio). U.S. 2,838,211, June 10. A closure cap comprising: a body portion having a peripheral, depending, internally threaded attaching flange for removable attachment to a container; a boss upstanding from said body portion; a stopper, and a leash carried by the stopper and closure-cap body portion.

Safety Container. Snell Robertson (to Swingspout Measure Co., Los Angeles, a corporation of California). U.S. 2,838,212, June 10. A safety container comprising: a closed vessel having a top wall and adapted to carry liquids, an elongate tubular pouring spout, a handle, elongate legs depending from the ends of the hand grip and connected with the top wall of the vessel, a closure, actuating means, a unity frame member, pivot pins, a gripping bar, a clevis plate and spring means.

Basket. Roy K. Wilson (to St. Joe Paper Co., Jacksonville, a corporation of Florida). U.S. 2,838,221, June 10. A substantially rectangular blank for forming a partitioned container.

Can Carrier. Paul A. Graf (to Container Corp. of America, Chicago, a corporation of Delaware). U.S. 2,838,223, June 10. A foldable can carrier formed from a one-piece blank of sheet material.

Handled Bag of Paper or Like Material and Method of Making Same,

Harford K. Steen (to Interstate Bag Co., a corporation of Virginia). U.S. 2,838,224, June 10. A bag having a handle in the form of a loop and composed of a strip of comparatively stiff, ribbon-like material.

Supplemental Sleeve for Multiwall Gusseted Valve Bag. Sheldon Y. Carnes et al (to Arkell & Smiths, Canajoharie, N.Y., a corporation of New York). U.S. 2,838,225, June 10. A gusseted paper bag with walls of a plurality of plies of paper therein, having a portion of one of the gussets and side wall folded inwardly into the mouth of the bag to form a valve and valve opening therein.

Casing for Individual Bottles and Objects of Like Shape. Carl Wilhelm Hartmann et al (to Keyes Fibre Co., Portland, Me., a corporation of Maine). U.S. 2,838,226, June 10. A molded-pulp casing for bottles comprising an inner section and two outer sections.

Valve for Liquid-Filling Apparatus. Ralph B. Reno (to Horix Mfg. Co., Pittsburgh, a corporation of Pennsylvania). U.S. 2,839,094, June 17. An improved filling valve for a container-filling apparatus, having means for raising and lowering a container to be filled and having a liquid containing tank above the container.

Machine for Dispensing Tape. Harris F. Hanscom (to H. F. Hanscom & Co., a corporation of Rhode Island). U.S. 2,839,137, June 17. A machine for dispensing tape and the like in predetermined lengths, comprising: a rotatably mounted wheel over which the tape passes to be measured, a tape-severing means and means operable to automatically rotate said wheel in the opposite direction to initial position upon severing said tape.

Seamed Metal Container with Plastic Cover for the Seam and Plastic Pouring Spout. Edward E. Scheswohl (to Crown Cork & Seal Co., Philadelphia, a corporation of New York). U.S. 2,839,229, June 17. A container having a body and a metal end secured thereto by an upstanding seam, and a cover of plastic material having an upstanding pouring spout.

Dispensing Nozzle with Non-Drip Collar. Ralph K. Pottle (to American Can Co., New York, a corporation of New Jersey). U.S. 2,839,230, June 17. A dripless, sealable nozzle of resilient plastic material for dispensing a corrosive liquid from a sheet-metal container.

Container-Closing Device. Frank A. David, Jr. (to Crown Zellerbach Corp., San Francisco, a corporation of Nevada). U.S. 2,839,881, June 24. A closure-flap holder for an upright container, employing a top closure member having a multisided panel with foldably connected side flaps.

Container-Capping Machine. Emil N. de Bastos et al (to Resina Automatic Machinery Co., Brooklyn, a corporation of New Jersey). U.S. 2,839,882, June 24. For use with container-capping machine, a device for aligning the caps with respect to the containers.

Holder for Cups, Cans and Similar Articles. Harold Grinspoon, Springfield, Mass. U.S. 2,840,233, June 24. A holder of resilient paperboard or similar material for packaging a row of generally

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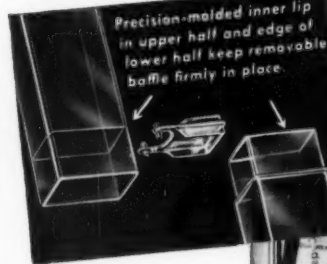
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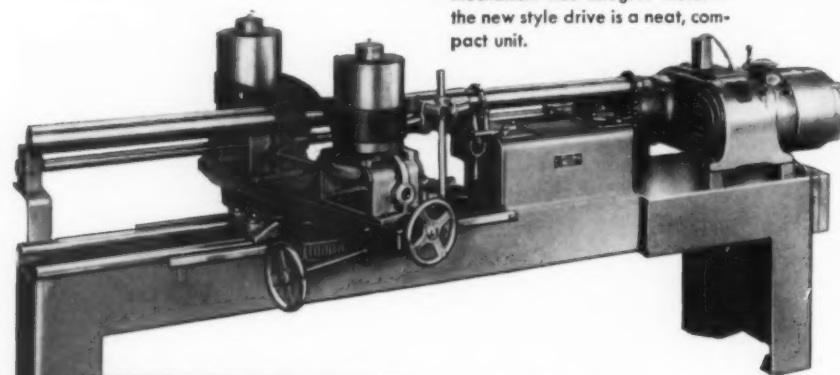
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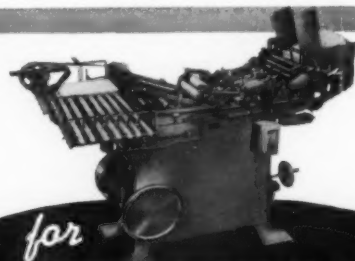
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U.S. patents digest

circular articles having recessed tops surrounded by projecting rims.

Carrying Handle with Locking Feature, Stephen F. Jensen (to American Can Co., New York, a corporation of New Jersey). U.S. 2,840,234, June 24. The combination of a pair of independent, rectangular fibre containers having peripheral, laterally projecting top ledges; means for tying said containers together as a unitary package, and a handle member comprising two integral contacting layers of material.

Package and Display Stand Therefor, Lloyd I. Volckening et al (to Ivers-Lee Co., Newark, a corporation of Delaware). U.S. 2,840,235, June 24. A package display comprising in combination, an elongated sheet of paperboard or the like and a plurality of substantially rectangular packages.

Beverage Bottle Case, James Walter Cobb, Jr., Memphis, Tenn. U.S. 2,840,256, June 24. A beverage case comprising: a box-like molded-plastic body having bottom, side and end walls, and a plurality of interconnected molded-plastic partitions to divide the case into a plurality of compartments adapted to carry beverage bottles, said body and partitions being formed of at least two independent sections.

Slotted Partitions for Shipping Cases, Richard E. Paige, New York. U.S. 2,840,293, June 24. A bottle case having interlocked display partitions.

Mailing Container, John S. Davis (to Equitable Paper Bag Co., Long Island City, N.Y., a corporation of New York). U.S. 2,840,294, June 24. A container including a length of paper which is tubed to a rectangular cross-sectional form having flat walls, one of which forms a longitudinally extending seam where the edge portions come together.

Carton Stack-Advancing Mechanism, Charles E. Kerr et al (to Food Machinery & Chemical Corp., San Jose, Calif., a corporation of Delaware). U.S. 2,840,375, June 24. A carton stack-advancing mechanism comprising: a carton magazine, a track, a carriage, means for urging said carriage toward one end of said magazine, carton-advancing means, and means for urging said carton-advancing means into said magazine.

Pellucid Composition and Method for Coating Foodstuffs and Articles Thereby Obtained, James R. Wirt et al (to The Dow Chemical Co., Midland, Mich., a corporation of Delaware). U.S. 2,840,474, June 24. Transparent coating composition for articles of food which consists of a mixture adapted to be applied as a hot melt.

Method of Coating Articles of Food and Product Obtained Thereby, Lorraine E. Patten et al (to The Dow Chemical Co.). U.S. 2,840,475, June 24. Method for coating articles of food which comprises applying to the article (while it is being maintained at a relatively low temperature) a thin enveloping film.

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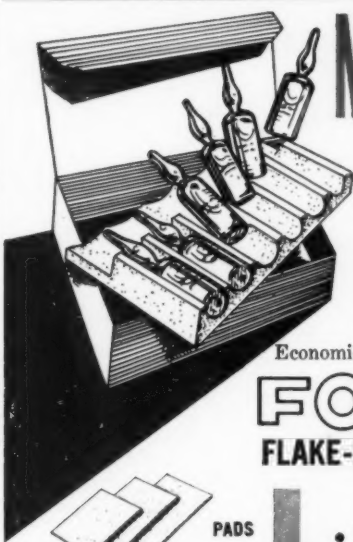
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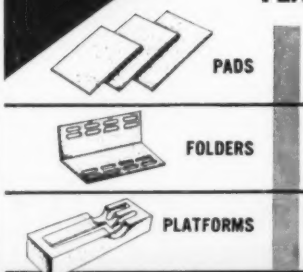
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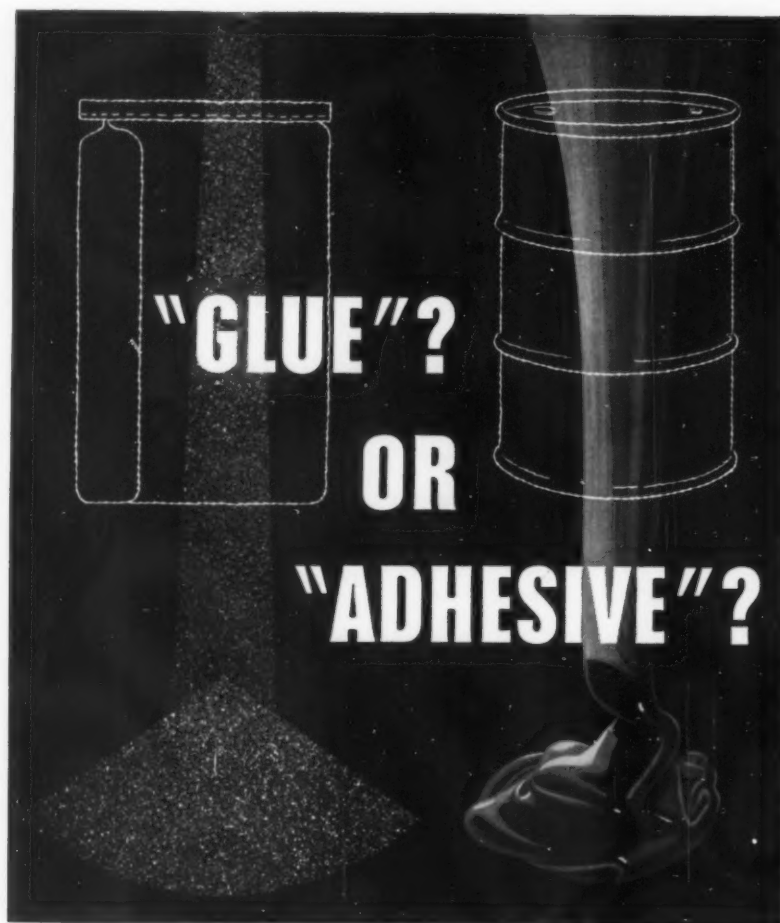


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Paper wraps

[Continued from page 115]

Among the widely used waxed-paper variations are four basic types that concern the packager: (1) wet-waxed paper, with high water-vapor protection for bread, candy and other products; (2) dry-waxed paper, offering slight water-vapor protection and used on razor blades, for instance; (3) one-side-waxed paper, offering enough protection for such products as gum wraps and bread end labels, and (4) wax-laminated paper, providing the high water-vapor resistance required by such products as soap and tobacco.

Add to this more than 200 types of glassine, greaseproof and vegetable-parchment papers that can be transparent, opaque, colored, heat sealable, etc., and the total makes an imposing list from which the packager may select a wrap to do an exacting, protective job for his product.

Paper wraps are excellent for enclosing soft and irregularly shaped goods as well as rigid and rectangular products. Moreover, such packaging can be accomplished on high-speed equipment. Chewing-gum wraps run at about 1,200 pieces a minute, frozen-food overwraps at 180 a minute. Equipment is quite similar to that used for film and foil wraps¹, which employs reciprocating elevator mechanisms, L-shaped horizontal feeds and intermittently rotating pockets or wheels.

Developments

Enabling paper wraps to maintain such a strong position in bread wraps is high-speed machinery that has been developed through the years to handle web-fed rolls of inner and outer wraps. In fact, it is from such equipment that users of cellophane and other transparent films have borrowed and adapted machines or techniques to achieve machinability on the packaging line.

Many converters and baking-industry experts foresee extreme activity in the next few years among competing types of bread wraps, particularly paper and film. With the profit margin on bread ranging between 2% and 5%, bakers are anxious to effect economies or increase their business volume. Cellophane, of course, has considerable volume al-

¹ See "Film and Foil Wraps," MODERN PACKAGING, July 1958, p. 94.

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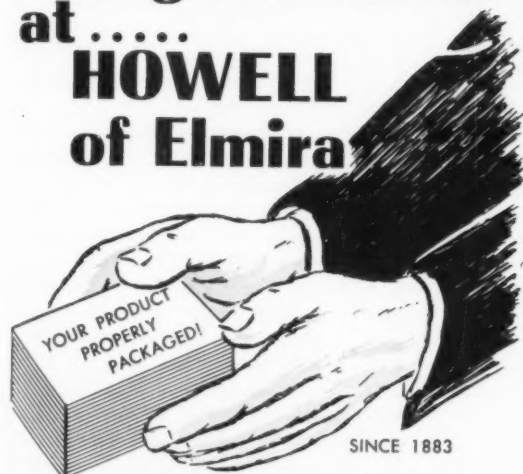


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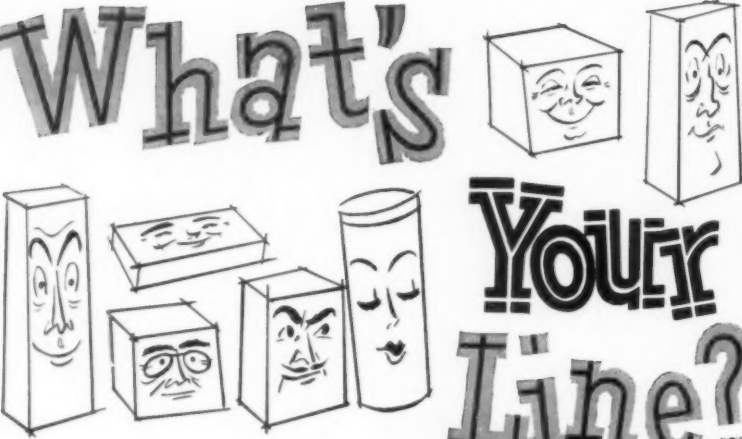
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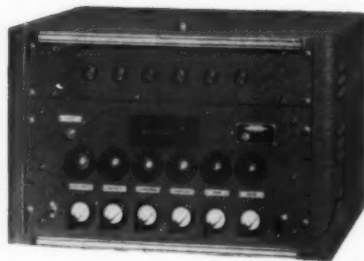
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ready. But polyethylene is coming into the picture, although handling and sealing problems must be solved before large-volume business is realized. Other films may win acceptance, too, just as foil has.

Whether such newcomers will displace cellophane's share of the bread-wrap market, waxed-paper's share, or some of both, is difficult to predict. With cost an important factor, waxed-paper manufacturers point out that for equivalent printed wraps currently on the market, waxed paper still is better than half a cent a loaf below its nearest competitor.

Waxed papers have met with competition in other areas, too. In the soap business a large number of brands have turned to foil laminations, although there are still some important brands in all-paper wrappers. In dairy and related products, such combinations as foil laminated to vegetable parchment are seen where paper once ruled exclusively.

Paper wraps also are scoring gains. Waxed papers have proved excellent for frozen foods and are being produced in greater volume as frozen-food sales mount. For both inner and outer wraps on crackers and biscuits, paper continues to do an effective job. New high-gloss papers have added to the merchandising impetus of such products in the scramble for higher sales.

However, in many of these applications where glassine, vegetable parchment or waxed papers have proved their superiority and economy, they are being combined with other materials.

In the past few years such new coatings as polyethylene-wax blends and volatile corrosion inhibitors have imparted new qualities to paper wraps to make them more serviceable and more effective merchandisers.

Great strides have been made in the use of petroleum waxes in combination with paper products. Even more important has been the addition of polyethylene resins to these waxes used for paper coatings.² The result of such modification is a promise of improved film properties which will enhance the effort by paper converters to turn out products best suited to the growing variety of modern packaging demands. One of

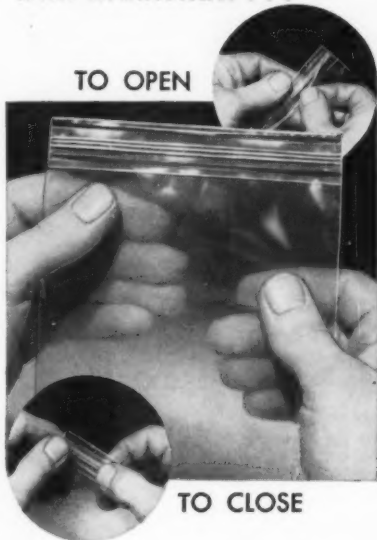
² See "Polyethylene-Wax Coatings," MODERN PACKAGING, Jan., 1958, p. 137.

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the principal beneficiaries of these developments in polyethylene-wax paper coatings is the packager of frozen foods.

Such advances may be expected to continue because the paper industry has established a history of research and development for constant improvement of its products. At the applied-research and quality-control levels, paper-wrap suppliers have instituted tests that not only guide the packager in selecting the proper wrap, but such practices have been adapted by other flexible-material producers for evaluation methods.

Alert to new opportunities, paper-wrap suppliers have been able to increase tonnage for frozen-food overwraps between 12% and 15% a year. At the same time these suppliers know that packagers now are more price conscious than ever.

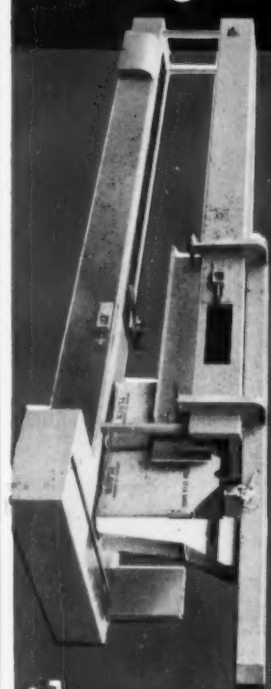
The recession and a cost-cutting wave among packagers this year places sharp focus on economical paper wraps. Indications for the first half of 1958 are that profit was below that of 1957, but that volume was running about the same as last year.

An optimistic note is reflected in many plant expansions. For instance, a trend that has developed recently has been the move to eight-color presses in converting operations. (Most equipment for printing paper wraps is flexographic, rotogravure or letterpress.) It is estimated that today paper-wrap volume could increase considerably on existing equipment without adding more plant facilities. As such volume is attained, the profit picture should improve.

Paper-wrap suppliers are closely watching the trend to one-material packaging, using a lamination of two or more materials. Already polyethylene-coated glassine, foil-laminated glassine or vegetable parchment, and other combinations are being used for specific applications. It is conceivable that more of these will be used for flexible and semi-rigid packaging where the packager would like to achieve the same level of protection but eliminate an overwrapping operation on the packaging line. At the same time, wrap manufacturers will be closely examining the total price for such constructions to make sure the packager knows if protection can be achieved more economically with a simple paper wrap.

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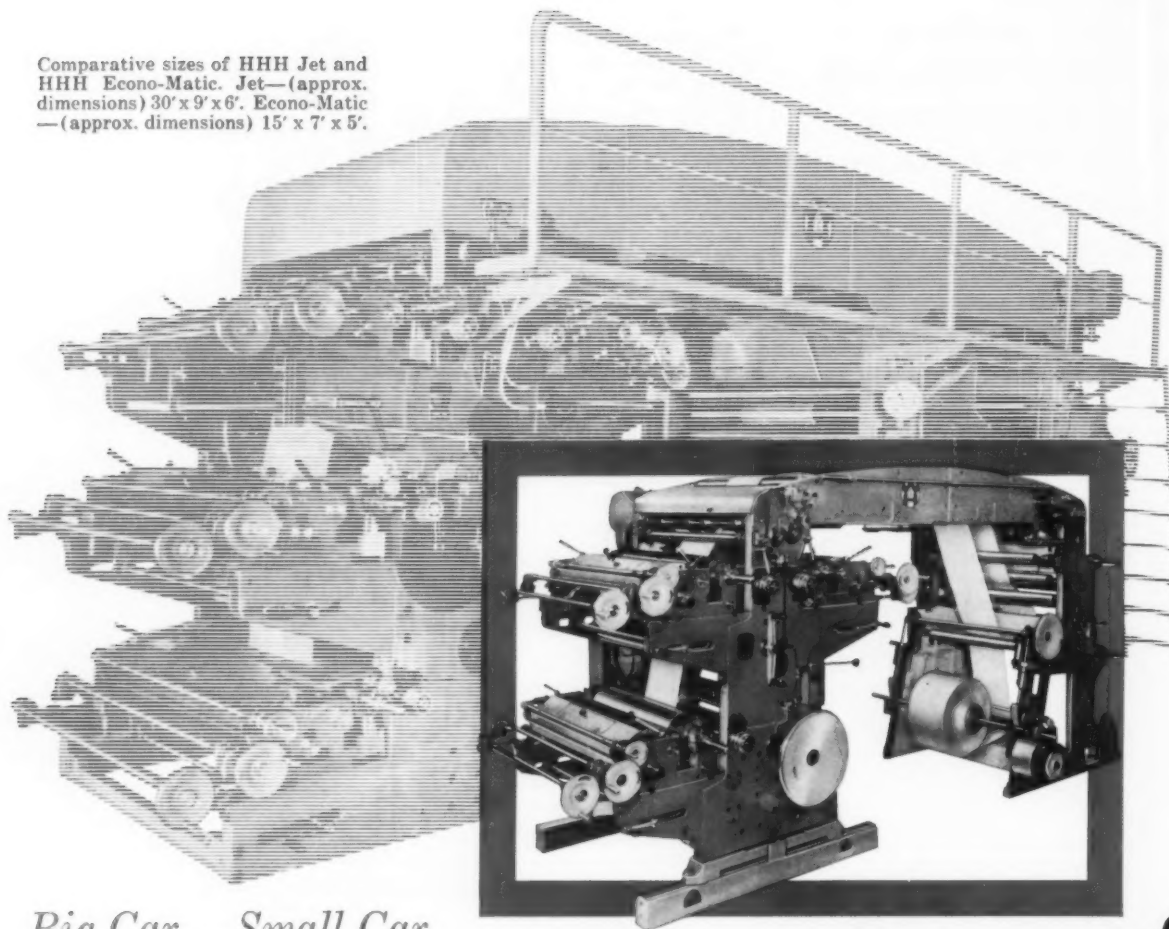
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CARTON CLOSURE EQUIPMENT. Illustrated bulletin describes features of an electric tape dispenser, available with custom selector and computer attachments for individualized carton closure systems. Better Packages, Inc.

(I-851)

TAPE DISPENSERS. Illustrated 6-page brochure describes features of lines of automatic, electric, and manual dispensers for gummed and pressure-sensitive tapes and labels. Includes specifications, related accessories. Derby Sealers, Inc.

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AUTOMATIC CAPPERS. Illustrated 6-page folder presents specifications for lines of automatic, straight-line and rotary, single and multi-spindle machines for applying snap, cork, screw closures, and various types of special fitments to bottles, jars, cans, and squeeze-type containers at speeds up to 200 per minute. Consolidated Packaging Machinery Corp.

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HIGH-SPEED LABELERS. Illustrated 4-page brochure presents construction and operational features of a line of high-speed, hot gluing machines for applying spot or full-length overlapping labels to cans in a wide range of sizes at rate of 250 a minute. Includes specifications. Burt Machine Co.

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UNIT PACKAGING. 6-page illustrated booklet covers the features and specifications of a line of automatic package-forming, filling and heat-sealing packaging machines for foods, pharmaceuticals, and flexible materials. Roto-Wrap Machine Corp.

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INDUSTRIAL STERILIZERS. Illustrated 4-page brochure describes features of lines of automatic ethylene oxide sterilizers for bulk or packaged heat- or moisture-sensitive materials. Scientific and Industrial Div., American Sterilizer.

(I-856)

AUTOMATIC PRESSURE-FORMING. Illustrated 10-page reprint describes mass producing of low-cost plastic packages by means of continuous automatic pressure forming. Tells how variables in operation cycle enable filling and sealing to be done as well. Plaxall, Inc.

(I-857)

CORRUGATED PACKAGE PROGRAMMING. Quarterly publication discusses corrugated package efficiency, design, printing. Describes and pictures case studies of package engineering programs based on product requirements. Hinde & Dauch.

(I-858)

PLASTIC LINERS. Illustrated 14-page brochure discusses features, applications of line of polyethylene, Mylar, and vinyl round, straight and square-bottom liners for drums, cans, pails, and cartons; plastic bags, covers, and specialties. Includes film selection chart, recommended procedures for inserting and closing liners, etc. Protective Lining Corp.

(I-859)

GUIDE TO CELLOPHANE. 6-page bulletin itemizes and describes characteristics and uses of this company's full line of standard and special purpose cellophanes including moistureproof, non-moistureproof, polymer coated, and heat-sealing types. Film Div., American Viscose Corp.

(I-860)

PACKAGING EQUIPMENT. File folder contains data on company's lines of feeders, vibratory fillers, net weighers, and heat-sealers. The Woodman Co., Inc.

(I-861)

AEROSOL PROPELLANTS. Illustrated technical booklet describes "Genetron" line of aerosol propellants. Includes properties chart, density and vapor pressure graphs, information on filling methods, directory of custom loaders and container and valve manufacturers. General Chem. Div., Allied Chemical Corp.

(I-862)

END LABELS. Demonstration brochure contains numerous samples of this firm's new "Spot-Lite" end labels for bread wrappers. Pollock Paper Corp.

(I-863)

HIGH DENSITY POLYETHYLENE. 16-page booklet describes "Grex" polyethylene resin. Discusses chemical and temperature resistance. Also includes discussion of polymer chemistry. Polymer Chemicals Div., W. R. Grace & Co.

(I-864)

CELLULOSE WADDING. Illustrated 8-page booklet describes properties and recommended uses of a line of cellulose wadding available in rolls and sheets for cushioning, insulating, and protective packaging. Cel-Fibe Div., Personal Products Corp.

(I-865)

ACCUMULATOR AND BUNDLER. Illustrated 4-page folder describes operational features and advantages of an automatic machine for unitizing packages of various sizes and shapes, overwrapping them with glue or heat-sealing wrapping materials. Hayssen Mfg. Co.

(I-866)

FLEXIBLE VACUUM PACKAGER. Illustrated bulletin presents features of a small machine for vacuum packaging in pouches up to 11½ in. wide, at speed of 15 packages a minute for one-pound packs and higher for smaller units. Includes specifications. Royal Flexible Packaging Corp.

(I-867)

BLISTER PACKAGING MACHINERY. Illustrated 4-page brochure describes features of a semi-automatic blister-to-card sealer which handles 1500 4 by 4 in. packages per minute; an automated turn-table blister sealer for faster production, and a machine for producing flange folded or completed slide packages. Includes specifications. Tronomatic Machine Mfg. Corp.

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LABELING MACHINES. Illustrated 4-page folder describes features of a line of semi-automatic and automatic machines for applying roll-fed labels by heat and pressure to a variety of container shapes and types at speeds up to 120 per minute. Includes specifications, optional equipment. Dumatic Industries, Inc.

(I-869)

AUTOMATIC IMPRINTERS. Illustrated 4-page leaflet describes line of automatic, production-line machines for imprinting identification and code-date data on from one to five sides of cartons, boxes, cans, crates, cases. Includes specifications and installation diagrams. Adolph Gottscho, Inc.

(I-870)

FITMENT APPLICATOR. Illustrated data sheet presents construction and operational features of an automatic machine for applying solid, perforated, tabbed or tabless fitments to glass containers at up to 120 per minute. Includes specifications, diagrams. Resina Automatic Machinery Co., Inc.

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VACUUM PACKAGING MACHINE. Illustrated specification sheet presents operational features of a machine for automatically printing, forming, filling, heat-sealing, and counting flexible, air-evacuated packages. Pak-Rapid, Inc. (I-872)

PLASTIC LABELS. Illustrated sample folder describes a line of roll-dispensed, pressure-sensitive glossy labels available in up to 6 colors in transparent and opaque acetate, polystyrene, Mylar. Goodren Products Corp. (I-873)

ULTRASONIC FOIL WELDER. Illustrated bulletin describes operational features of an ultrasonic welder for producing airtight, humidity-proof aluminum and thin sheet metal packages without heat. For use manually or with automated systems. Includes specifications. Vibro-Ceramics Div., Gulton Industries, Inc. (I-874)

SANITARY CUPS. Illustrated 4-page brochure describes features of company's waxed and unwaxed paper and plastic nesting containers, and related snap-on clear and opaque plastic closures. Includes sizes, catalog list. Lily-Tulip Cup Corp. (I-875)

EXTRUDERS. Illustrated catalog describes line of extruders with diameters from 1½ through 12 in. Also covers auxiliary equipment including film dies, take-up unit, pelletizers, cooling and polishing roll assemblies. Specifications included. Hartig Engine & Machine Co. (I-876)

TECHNICAL REPORT ON POLYETHYLENE. Illustrated 20-page technical booklet contains reports on the properties and structure of Marlex low pressure polyethylene for use in injection molding, extrusion, vacuum forming and welding. Phillips Petroleum Co. (I-877)

AUTOMATIC FILLER. Data sheet presents features of an automatic piston filler machine for filling 1 dram to 16 oz. plastic, glass and metal containers of round, oval or odd shapes with free-flowing or semi-viscous liquids at speeds up to 120 fills per minute. National Instrument Co. (I-878)

BAG CLOSER-SEALER. Illustrated 4-page brochure describes features of a semi-automatic machine for folding, heat-sealing and gluing automatic and square style bags, to produce approximately 30 shelf-type packages a minute. Includes specifications, installation data. George H. Fry Co. (I-879)

"PLIOFILM" PACKAGING. Illustrated 18-page booklet describes properties and product packaging applications of available grades of "Pliofilm," a clear heat-sealing packaging film. Includes test data table and separate 23-page end-use manual. The Goodyear Tire & Rubber Co. (I-880)

POLYETHYLENE COATING RESINS. Illustrated 32-page manual describes properties, uses and methods of applying "Alathon" polyethylene resins as a coating for paper, paperboard, aluminum foil, cellophane, fabric, and other flexible and semi-flexible packaging materials. E. I. du Pont de Nemours & Co., Inc. (I-881)

CELLULOSE ACETATE FILMS. 5-page technical bulletin describes the properties, types, and packaging applications of transparent, cast and extruded cellulose acetate thermoplastic films. Includes specifications. Plastics Div., Celanese Corp. of America. (I-882)

AUTOMATIC REGISTER CONTROL. Illustrated 4-page folder describes features of an electric-eye control with proportional correction accurate to .0005 in. For automatic cutoff and color register operation of high-speed rotary printing presses. Champlain Co., Inc. (I-883)

DECORATIVE BOXES. Illustrated 4-page catalog describes lines of stock reuse "custom-design" leatherette and velvet-covered plastic and metal boxes for packaging jewelry and watches. Includes prices. Arrow Mfg. Co., Inc. (I-884)

PLASTIC BOX CATALOG. 16-page catalog pictures and describes lines of hinged; telescope and slide covered; square, round, egg-shaped and rectangular; compartmented; and other stock molded plastic boxes. Includes prices, availability data, sizes. Bradley Industries. (I-885)

"TEFLON" RESINS. Folder presents general information on properties and uses for "Teflon" coatings on printing, packaging, filling, and heat-sealing equipment. General Plastics Corp. (I-886)

PLASTICS IN PACKAGING. Illustrated 8-page booklet discusses packaging and sales advantages of polyethylene films and containers, polystyrene resins, phenolic closures, and vinyl films and sheets. Bakelite Co., Div. Union Carbide Corp. (I-887)

MOLTEN COATINGS. Illustrated 8-page brochure presents application methods, and properties of a line of synthetic resin-and-rubber hot melt coatings for paper, film, and foil that require no solvents, need no heat for drying. Boler Petroleum Co. (I-888)

POUCH PACKAGING MACHINE. Illustrated bulletin describes features of an automatic machine for forming, filling, (several different items at one time), and sealing up to 400 pouches per minute. Handles liquids, semi-liquids and powders. Includes specifications. Bell-Pak Div., Bell Machine Co. (I-889)

PRINCIPLES OF PACKAGE DESIGN. 8-page booklet pictures and discusses principles of package design; color, symbolism, brand identification, and "taste excitement" factors, and their relation to sales of packaged products. Western Waxide Div., Crown Zellerbach Corp. (I-890)

CAN MAKING MACHINERY. File folder contains illustrated catalogs on slitting, body making and soldering, flanging, beading, air testing, scroll shearing, and end curling equipment. Includes specifications. Hamilton Div., Baldwin-Lima-Hamilton Corp. (I-891)

TRANSPARENT VINYL FILM. Illustrated 4-page pamphlet presents properties, specifications, applications of "Clopane" extruded vinyl packaging film. Includes sizes, price lists, sample. Plastic Films Div., Cloray Corp. (I-892)

AUTOMATIC CASERS. Illustrated 4-page bulletin lists capacities, specifications, features of a line of machines for automatically casing all types and sizes of flat cylindrical containers, (excluding glass). Chisholm-Ryder Co. of Pennsylvania. (I-893)

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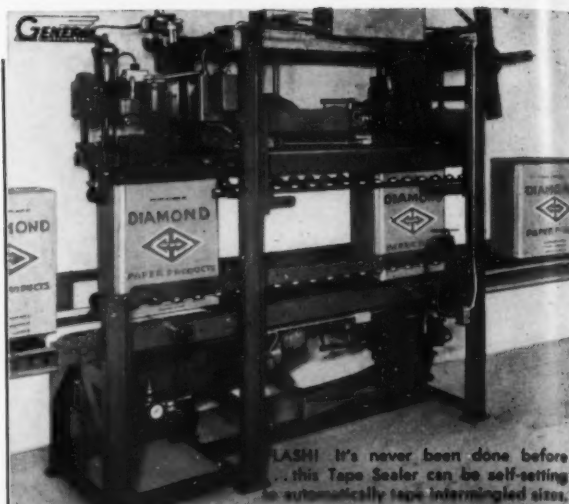
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Reynolds expands

Reynolds Metals Co., Richmond, Va., is expanding and diversifying its aluminum-foil production facilities on the West Coast. To be completed by year's end, the new operations will provide the company's packaging customers in that area with faster delivery of such aluminum products as rigid foil containers, "cook-in" foil pouches, printed foil overwraps, laminated folding cartons, labels, bread wraps and gift wraps, reports Paul Murphy, vice president of Reynolds Aluminum Sales Co.

At a new foil plant nearing completion in Torrance, Calif., Reynolds will manufacture pans for pies, frozen foods, cake mixes and other food products. Four container presses at the plant will have a production capacity of 100,000 containers per shift, according to Mr. Murphy. The Torrance facility also will include a high-speed laminator and a five-color flexographic press for printing on foil wraps and other specialized packaging materials. The company also is installing an eight-color press, along with complete carton-making and laminating equipment, at its plant in Vernon, Calif., to service the West Coast folding-box manufacturers.

Polystyrene in use

[Continued from page 125]

and the hardness of surface permits intricate, detailed designs.

Machinability. Because of its relative stiffness, polystyrene film handles well in automatic machinery. It has reportedly been run satisfactorily through cellophane equipment, although of course it cannot at present be heat sealed in such equipment. It does carry a certain amount of static charge, but this is offset by the stiffness of the film and can be overcome, it is said, with standard static eliminators.

With one brand of bi-oriented polystyrene film only recently well launched in the general packaging market and the second (actually, the earlier) brand just beginning to move from laminating uses to straight film applications, the principal problem for the present may be that of supply. One supplier is expanding facilities in Cleveland, with production scheduled for early 1959.

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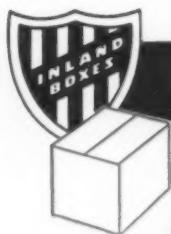
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Packaging, Handling and Shipping Show

The 13th annual Packaging, Handling and Shipping Show, sponsored by the Society of Industrial Packaging & Materials. Handling Engineers, will be held Oct. 14-16 at the Chicago Coliseum. At the show, the winning entries in SIPMHE's annual National Championship Packaging and Handling competition will be on display.

According to SIPMHE, its 1958 show will present a large number of "firsts" of interest to packaging-handling and shipping executives. These will include a machine that salvages used corrugated boxes as a cushioning material, a new line of automatic steel-strapping machines and new developments in stretchable paper and gummed sealing tapes.

A highlight of this year's show will be joint Packaging Institute-SIPMHE Special Technical Ses-

sions, to be held Oct. 15 at the Coliseum in conjunction with PI's concurrent annual Forum. Talks to be given at these sessions include: "The Story Behind the Planning of Johnson & Johnson's New 'Plant of Tomorrow,'" by F. P. Coons, packaging engineer, Johnson & Johnson, and "Development of Palletless Unit Loading at P&G," by Arthur Spinger, associate director, Industrial Engineering Div., The Procter & Gamble Co.

A Technical Short Course will round out the program of events in the annual SIPMHE show. In two main divisions of the Short Course—packaging, and materials handling and shipping—a total of 44 different topics will be presented in 16 separate sessions. The course will run from Oct. 13-15 at the YMCA Hotel, located close to the Coliseum.

Tensile impact tests on films

[Continued from page 152]

machine direction is approximately equal to the impact strength at 45 deg.; namely, 280 ft. lbs. per cubic inch.

Because of some peculiarity of resin or extrusion condition, the impact strength in the transverse direction is quite low; namely, 120 ft. lbs. per cubic inch.

Even in this extreme case, however, the "equivalent tensile impact toughness," the square root of the product of the strengths in the machine and transverse directions, gives a good over-all average of the impact strength of the film.

From the results with the resins considered, it appears that they generally have a rectangular-type distribution, with the machine and transverse generally being the critical directions for toughness. Thus, the use of an empirical quantity such as an "equivalent tensile impact toughness," $TE = (T_{md} T_{td})^{1/2}$, is apparently a meaningful and conservative estimate of the over-all film toughness.

Falling ball test

The falling ball test is based on the assumption that a measure of the impact strength or toughness of a film can be obtained by determining the decrease of kinetic energy of a freely falling sphere as it pene-

trates a sample of the film. In this test (7), the film is placed in a circular clamp and a steel ball is allowed to strike it from different heights. A photocell system is used to measure the velocity of the ball after the film is fractured. The energy of the ball after fracture is subtracted from the initial energy of the ball. The difference between these two measurements is the impact strength of the film.

Observations concerning the configuration of the puncture in the film have been performed at various impact velocities. They can be classified generally into:

Type A—perfect puncture, circular section of film removed

Type B—slits with shredding

Combinations of both of these classifications frequently occur and many punctures show considerable shredding of the film. Experiments have shown that the puncture types fall into rather definite toughness ranges, although the significance of this observation is somewhat uncertain.

The type of puncture produced may be influenced by the frictional characteristics of the ball and film surface. Theoretically, there should be no slippage between the ball and the film. For this ideal case, maximum stress should occur in the cir-

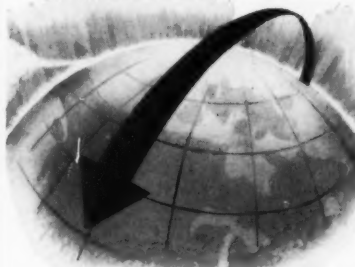
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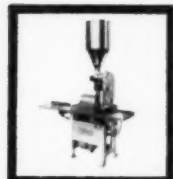


Typical Arenco personalized service is the experience of Riker Laboratories in Los Angeles. Riker urgently needed an Arenco capping machine to implement production. To meet Riker time requirements Arenco delivered the equipment by air, non-stop from Denmark across the North Pole to Riker Laboratories in Los Angeles!

The unit "was delivered as scheduled," said a Riker Laboratories spokesman, "with a minimum of effort on our part, and we are most grateful to the Arenco Machine Company for their splendid cooperation in this matter."

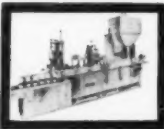


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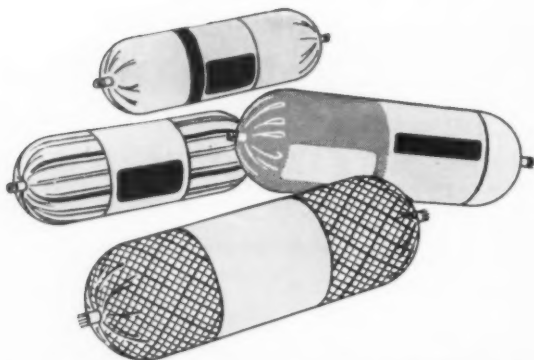
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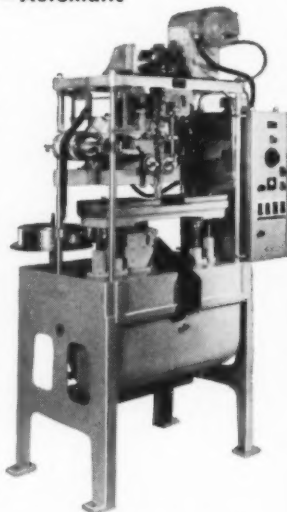
Makes a uniform, attractive package which means more impulse sales—more repeat sales for your product. And it's a convenient package for consumers to use. Gives added protection to your product.

Forms the package from flat roll stock thermoplastic film—saran, polyethylene, and others. Machine automatically closes package ends with wire clips made from roll stock wire.

Printed or plain film can be used. Package identification can be made by use of printed film, or by attaching attractive band labels.

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Floor space is saved. Machine is compact. Size 4 ft. wide x 3 ft. deep x 7 ft. high.

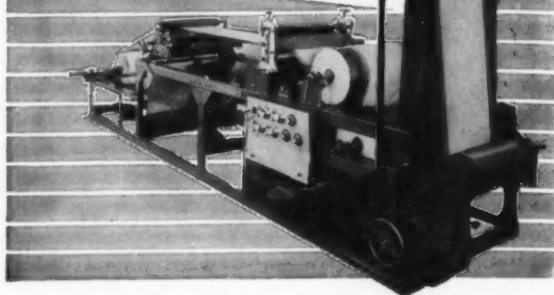
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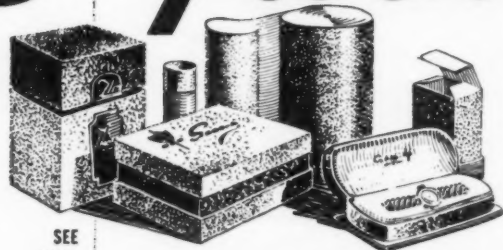
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cular area where the film is tangent to the ball. But if slippage occurs, the contact surface will be stretched, thus increasing the stress in that concentrated area.

The electrostatic qualities of the film and the preconditioning and migration of slip agents might also influence the geometry of the puncture. Moreover, controlled investigation has proved that the steel-ball size has a definite effect on the falling ball test results.

Conclusion

In summary, our confidence in the tensile impact test as described is high. It is useful for testing a wide variety of both materials and fabrication techniques; i.e., compression molded, injection molded or film. It is concluded that the tensile impact test may be used as a satisfactory substitute for the increment-height bag drop test. By so doing, more precise and accurate impact data may be obtained. However, the thickness effect—which is not taken into account in the bag drop test—may be included in the results of the impact test by a simple conversion. When this is done, a good statistical correlation between the tensile impact test and the bag drop test results. It is concluded, therefore, that the tensile impact test should replace the bag drop test and that the correlation chart should be abandoned after this transformation has been made.

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7. Flierl, D. W., "Methods of Rating Film Durability," *MODERN PACKAGING*, Nov., 1951, p. 129.

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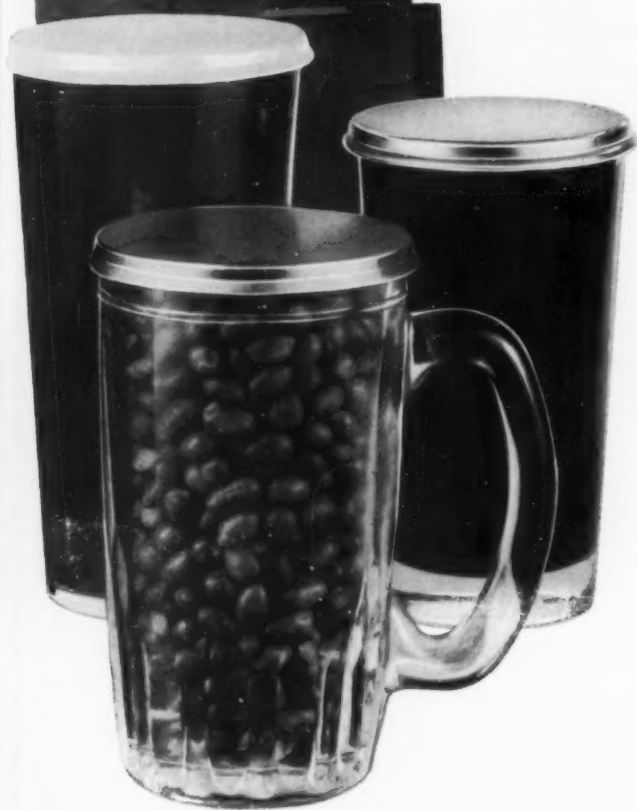


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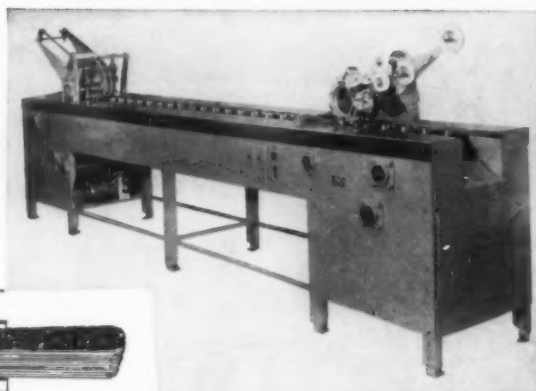
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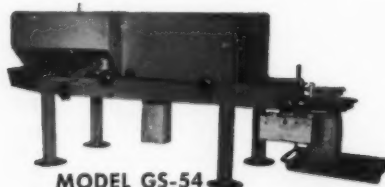
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Fourth joint symposium

Theme of the Fourth Joint Military-Industry Packaging & Handling Symposium, to be held Sept. 30-Oct. 2, Washington, D. C., is "Imagining—to Meet Tomorrow's Needs." The event is sponsored by the Navy's Office of Naval Material.

Twenty challenging, forward-thinking sessions—covering many facets of the packaging industry and including 123 speakers—scheduled for the three-day program should have wide appeal for packagers.

The first day's program, to be held in the Departmental Auditorium, is divided into two sessions of broad interest to all participants. Keynote addresses at the opening session, scheduled for 9:30 a.m., Sept. 30, will be by Clinton W. Blount of The Bakelite Co., representing industry, and by Vice Admiral Robert B. Pirie, Dept. of the Navy, representing the military. Dr. Gilford G. Quarles, U. S. Army Ordnance Missile Command, will address the symposium on "The Challenge of Outer Space." The afternoon session on the subject, "Space Logistics," will be chairmanned by H. H. Koelle, U. S. Army Ballistic Missile Agency.

Five concurrent panel sessions will be held on the second and third days. Each panel will include morning sessions starting at 9 o'clock and afternoon sessions starting at 1:15.

Subjects to be covered in Session A include "New Analytical Concepts from Industry," Dr. James R. Bright, Harvard University, chairman; "Automatic Data Processing in Perspective," Harold Silverstein, Dept. of the Army, chairman; "The Source to User Concept," Robert L. Turner, Traffic-Air Transport Assn. of America, chairman; "In-Company Development of Capable Personnel," Clifford J. Craft of American Management Assn. and James W. Goff of Michigan State University, co-chairmen.

Session B will consider these subjects: "Keys to Profit," James W. Goff, Michigan State University, chairman; "Packaging, Handling Transportation of Radioactive Material," Dr. Joseph A. Lieberman, Atomic Energy Commission, chairman; "The Transportation Industry's Concept of an Integrated Containerized System," Clifford C. Whiteford, Ford Motor Co., chairman; "Meet the U. S. Post Office," Roy L.

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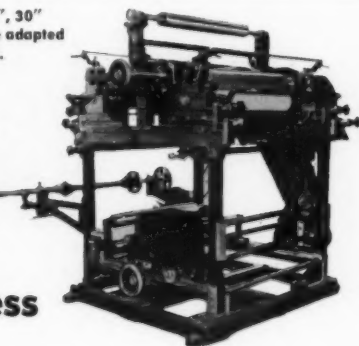
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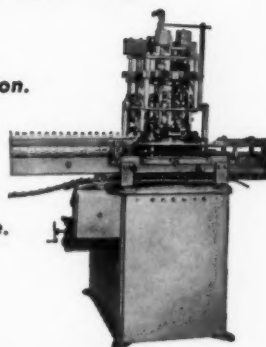
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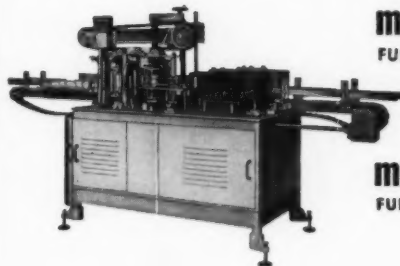


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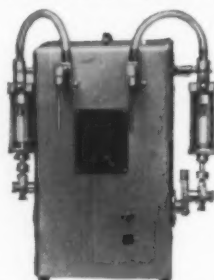
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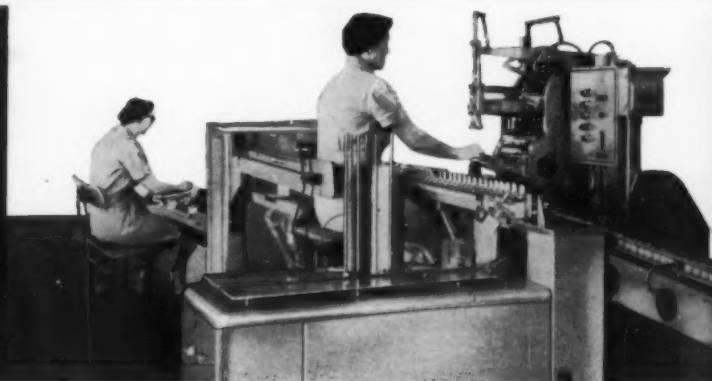
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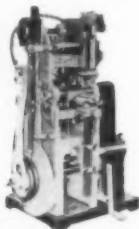
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Sheridan, U. S. Post Office Dept., chairman.

The third panel, Session C, will have only three sessions: "Exploring the Automatic Warehouse Theory," William H. Meserole, Ballinger-Meserole Co., chairman; "Distribution and Material Handling," R. L. Fairbank, Towmotor Corp., chairman; "Materials Handling Questions and Answers," John D. Velardo, *Flow Magazine*, chairman.

Opening Session D will be a panel covering the subject, "Today and Tomorrow in Plastic Packaging," which will be divided into two sub-sessions: "Thermoformed Packages for Small Items," Frank L. Quinby, W. R. Grace & Co., chairman, and "New Flexible Packaging Materials and their Uses," Edward M. Porter, Wraps, Inc., chairman. Other subjects included in Session D are "Molded and Fabricated Rigid and Semi-Rigid Plastic Containers," Charles L. Condit, The Society of the Plastics Industry, chairman; "Rugged, but Light," Dr. J. A. Murray, QM Research & Engineering Center, chairman.

Panels of Session E include: "The Modern Approach to Packaging Administration," Col. A. J. Mason, Wright-Patterson Air Force Base, chairman; "Packaging Testing," Herbert M. Lapidus, Dept. of the Navy, chairman; "New Trends in Packaging Materials and Machinery," R. Bruce Holmgren of *Packaging Engineering Magazine* and William B. Bronander, Jr., of Scandia Mfg. Co., co-chairmen; "New Developments in Packaging Advanced Type Weapons and Their Components," E. P. Troeger, Douglas Aircraft Co., chairman.

Following are the auditoriums in which each of the panel sessions will be held:

Session A: The Dept. of Commerce Auditorium, 14 St., between D St. and Constitution Ave., N. W.

Session B: General Services Administration Auditorium, F St. between 18 and 19 Sts., N. W.

Session C: Dept. of Justice Great Hall, 10 St. and Constitution Ave., N. W.

Session D: Departmental Auditorium, Constitution Ave., between 12 and 14 Sts., N. W.

Session E: Dept. of Interior Auditorium, C St., between 18 and 19 Sts., N. W.

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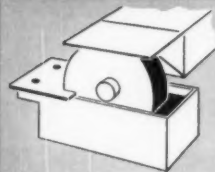
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The new designs for metal boxes were bold and imaginative, well calculated to gain Carter's a new position of leadership. However, the boxes posed manufacturing problems because of their sharply tapered side walls. Other considerations were special inside coatings to insure long life for pad and box and lithography that would prove chip and scratch proof.



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*Reading left to right: Robert W. Hoerberle, Product Manager; Warren R. Burns, Merchandising Manager; Gilbert Malone, J. L. Clark Representative; Geoffrey L. Pippette, Advertising and Sales Promotion Manager; Russell L. Briggs, Purchasing Agent.



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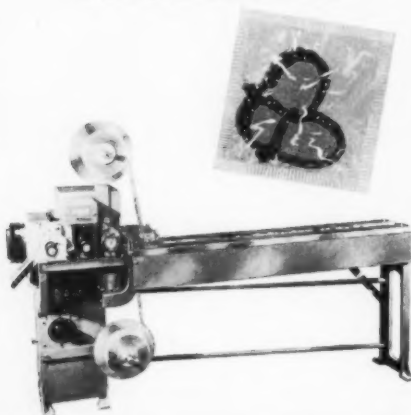
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PI Forum

[Continued from page 130]

Comes of Age," Robert Sidney Dickens, Robert Sidney Dickens, Inc., and "Precis of Presentation," William Capitman, president, The Center for Research in Marketing.

Packaging Research and Development—W. T. Nye, Gaylord Container Corp., chairman; "It's a Set-Up (Box)!" Richard Wellbrock, vice president, New Jersey Machine Corp.; "Latest Developments in Aluminum Cans," L. R. Payton, manager, Rigid Container Div., Reynolds Metals Co.; "A Technical Paper from Michigan State University's School of Packaging," James Goff, assistant professor, Dept. of Forest Products; "Drum-paket for Shipping Bulk Granular Materials," H. E. Taylor, Gaylord Container Corp., and "A New Heat-Sealable, Cold-Water-Soluble Transparent Packaging Film," E. M. Kratz, Mono-Sol Corp.

Production Line and Machinery (Part 1)—Byron Kingery, Lederle Laboratories Div., chairman; "Gear-ing the Production Line to a Buyer's Market," L. E. Smith, Finishing Department head, Bristol-Myers Co.; "Wishful Thinking Pays Off," C. P. Whittier, Packaging Research Div., Owens-Illinois, and "The Human Ingredients in the Packaging Stew," Don S. Shepherd, vice president, Winthrop Laboratories.

Tuesday morning there will be three concurrent seminars on:

Drug and Pharmaceutical (Part 1)—George Robinson, Merck, Sharp & Dohme, chairman; "Pharmaceutical Aerosol Laboratory Developments," Edwin Pomerantz, Pharmaceutical Section, Chas. Pfizer & Co., Inc.; "Rx for Aerosol Packaging Through Contract Packagers," John C. Armstrong, Armstrong Laboratories; "Rx for Aerosol Packaging . . . Do It Yourself," Robert A. Foresman, Jr., aerosol consultant, and "Cost Substantiation of Aerosol Packaging," Samuel Prussin, director, new products, Aerosol Techniques, Inc.

Bag and Industrial Packaging—Howard Voorhees, division manager, purchases, Union Carbide Corp., chairman; "Wirebound-Corrugated Containers for Bulk Shipment of Granular and Powdered Materials," Henry A. Wolsdorf, vice president, [Continued on page 222]

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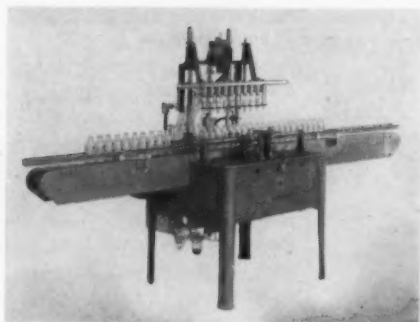
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[Continued from page 218]

Package Research Laboratory; "Multiwall Bag Sewn Closures . . . Reviewed and Appraised," T. E. Dowling, American Cyanamid Co.; "What's New in Flexible Industrial Containers," J. Sandford, Engineering Service Div., E. I. du Pont de Nemours & Co., and "How to Design and Test Unit Loads," Walter Friedman, Container Laboratories, Inc.

Printed Folding Box—L. H. Casert, Industrial Packaging Co. Div., Continental Paper Co., chairman; "The Experts Evaluate the Five Major Printing Processes . . . Letterpress," J. K. Higgins, National Folding Box Co. Div., Federal Paper Board Co., Inc.; "Lithography," Richard Walters, U. S. Printing & Lithograph Co.; "Flexography," Richard Wells, Badger Carton Co.; "Screen Process," Fred Braun, Color Reproductions Co., and "Gravure," J. A. Rogers, Boxboard and Folding Carton Div., Continental Can Co.

Tuesday afternoon's three concurrent seminars will cover:

Drug and Pharmaceutical (Part 2)—Howard Berger, Smith, Kline & French Laboratories, chairman; "Packaging 'Hard-to-Hold' Products in Polyethylene," J. D. Czarnecki, Bradley Container Corp.; "Lined Polyethylene Bottles," J. H. Parli-man, Plax Corp., and "Reasons and Requirements for Internal Linings for Plastic Containers," Ralph H. Thomas, director Packaging Research Dept., Bristol-Myers Co.

Hardware Packaging—Roy D. Connell, J. Wiss & Sons, chairman; "Packaging Needs of Consumer Versus Industrial in Hardware Products," W. H. Drews, packaging coordinator, The Black & Decker Mfg. Co.; "The Builders' Hardware Industry Combines Consumer Packaging with Long Established Industrial," F. S. Haniewicz, The Yale & Towne Mfg. Co.; and "Hardware Packaging to Meet the Needs of the Modern Hardware Merchant," Walter L. Wirth, National Retail Hardware Assn.

Food Packaging—L. J. Hayhurst, National Dairy Products Corp., chairman; "Food Packaging—the Show Case that Sells," JoAnn Shur-pit, director, Dept. of Home Economics, Libby, McNeil & Libby; "Today's and Tomorrow's Materials for Consumer Packaging of Foods," J. M. Heinen, manager, package engineering, Continental Can Co.; "A

Case Study of Market Development and Package Acceptance of the Tetra Pak Method," E. C. Garwood, manager, New Products Development Dept., Crown Zellerbach Corp.; "The Food Retailer Appraises Your Package," a speaker from National Tea Co., and "Pathological Aspects of Pre-packaging Fruits and Vegetables," G. R. DiMarco, extension associate, Food Science Dept., Rutgers University.

Wednesday morning seminars:

Production Line and Machinery (Part 2)—E. M. Wixted, Schering Corp., chairman; "Minimizing Adhesion Production Problems," H. E. Smith, Hiram Walker & Sons, Inc.; "Importance of Effective Training of Packaging Personnel," R. E. Mottin, manager Mechanical Development Dept., Parke, Davis & Co., and "Factors Affecting Packaging Line Layout," Hugh Lyons, Merck, Sharp & Dohme.

Closures—Robert C. Dewey, Dewey & Almy Chemical Co., chairman; "Selecting Closures for Food Packaging," L. A. Von Till, Kraft Foods Co.; "Modern Closure Coatings," G. M. Shiffer, Stoner-Mudge Co., Div. American-Marietta Co.; "The Future of Plastic Closures in the Food Industry," R. S. Shoemaker, coordinator for packaging, The Dow Chemical Co.; "Modern Closures of Aluminum," A. G. Osborne, chief chemist, Closure Div., Aluminum Co. of America, and "Why is the Universal Cap Liner such a Remote Possibility?" Tracy Cowen, assistant general manager, Standard Insulation Co.

Flexible Packaging—P. B. Reuman, Film Dept., E. I. du Pont de Nemours & Co., Inc., chairman; "Review and Outlook of Flexible Packaging," Charles A. Lewis, director, Containers & Packaging Div., U. S. Dept. of Commerce; "The Polyolefin Resins and Their Future Possibilities," Charles A. Southwick, Jr., technical editor, MODERN PACKAGING Magazine; "Films for Prepared Foods," Dr. R. E. Morse, Dept. of Food Science, Rutgers University; "Film and Foil Combinations of the Future," Ross C. Reed, product development, The Dobeckmun Co., and "Packaging Meats for Self Service," J. M. Ramsbottom, head, Packaging Div., Swift & Co.

For information on joint PISIPMHE Special Technical Sessions on Wednesday afternoon, see p. 207.

ANOTHER VERTROD FIRST!!!

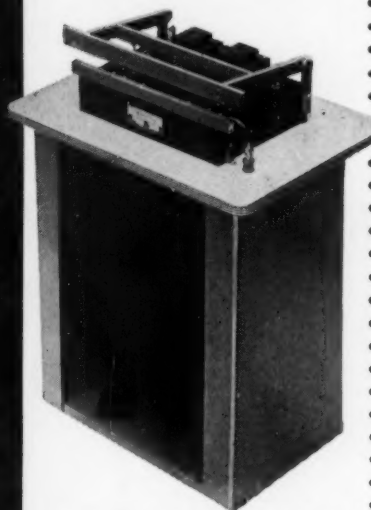
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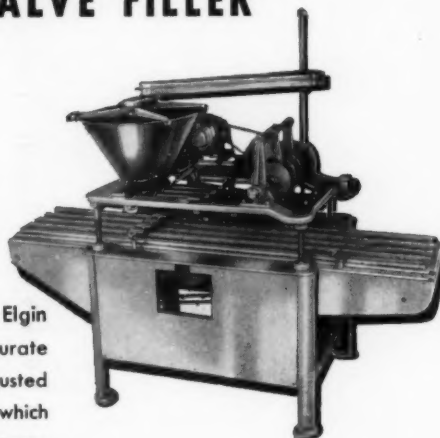
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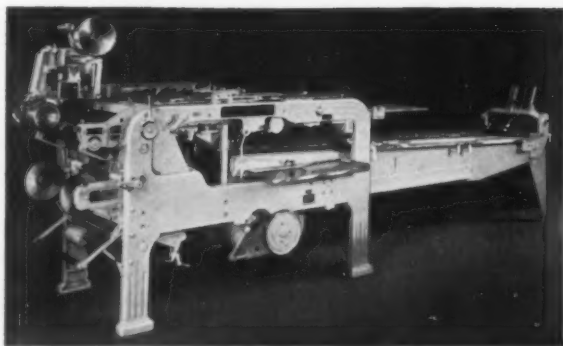
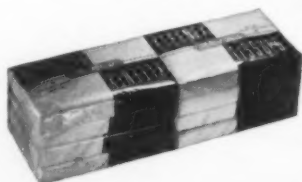


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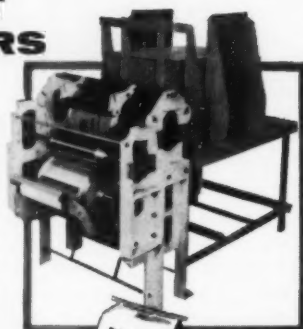
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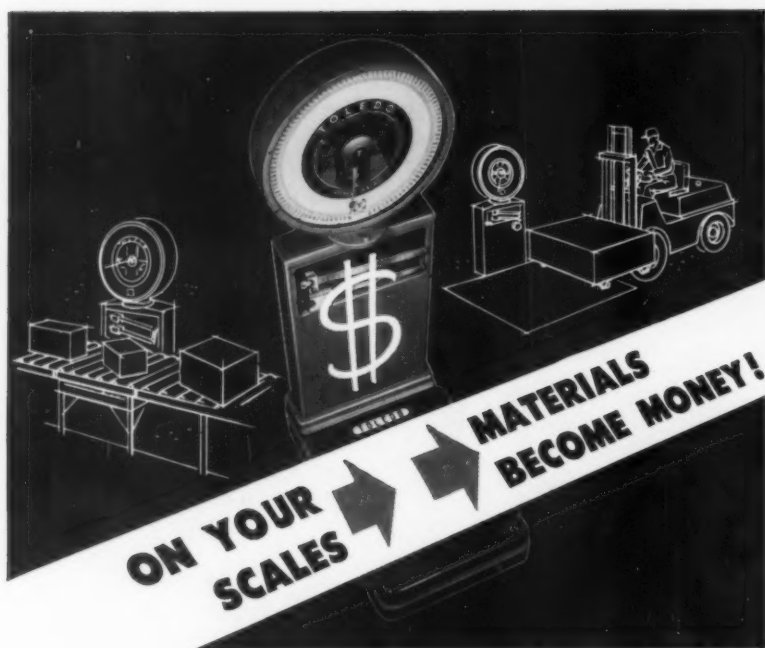
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West Show a success

About 7,300 industry personnel attended the seventh biennial Western Packaging & Materials Handling Exposition, held Aug. 11-13 at San Francisco's Civic Auditorium. This attendance figure, plus the number of exhibitors—139—ranked the 1958 show as one of the most successful in the series. Two years ago at Los Angeles, the show drew a record attendance figure of 8,600 to its 148 exhibits.

A feature of this year's exposition was a one-day packaging and materials-handling clinic, conducted by consultant William H. Jahnicke and sponsored by the Western Packaging Assn.

The Western show will return to Los Angeles in August, 1960, according to Clapp & Poliak, managers and sponsors of the event.

Polystyrene film

[Continued from page 157]

zons. How far, is unpredictable, but the future certainly appears to be promising.

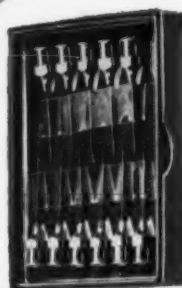
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8. Bailey, James, "Stretch Orientation of Styrene and Its Interesting Results," *India Rubber World*, May, 1948, 118, No. 2, pp. 225-231.
9. Roger Williams Report.

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1959 Packaging Show

The American Management Assn. reports that the 28th National Packaging Exposition will be held at the International Amphitheatre in Chicago, April 13-17, 1959. It is expected to draw an attendance of some 30,000, says AMA, sponsor of the annual event.

Aluminum-canned beer

[Continued from page 110]

upon only the top rim of the can to lock into perforated slots. Because a tear tape is provided along the top of the six-pack, individual cans are easy to remove. Yet each is held snugly and independently of the



Man behind the introduction of first aluminum beer can at Hawaii Brewing is vice president-general manager J. V. Purcell, who worked three years with mainland developers to bring it about.

other by means of divider or separation flaps and inverted tabs that are part of the cases. Four of these printed six-packs are assembled automatically in a printed, lightweight, white-faced laminated kraft board sleeve which locks the end cans in perforated bottom slots.

Because of its shape and weight, the complete 24-can "case" is easily carried under the arm. But the "Zip-'n-Pick-Pack" also has a perforated tear strip running completely around its middle, so that it may be separated into two sections of 12 cans (two six-packs) each, with completely independent brand and merchandising information.

Thus, Hawaii Brewing believes it is not only first in the U. S. to market beer in aluminum cans, but the first to offer as a standard practice the full range of six-, 12- and 24-can packs in carry-home sizes.

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FOR SALE—ONE SIMPLEX Model 24-7 Polymachine with electric brakes, clutch and eye, hole punch and triple skip attachments. Runs both back seam and tubing from 2" to 24" wide, 3" to 36" long. Machine in perfect working condition. **Tek-Kay Company**, P. O. Box 912, Turlock, Calif.

FOR SALE—MIEHLE #4 PRESS 27" x 41" Two semi-automatic Miller Wrapping and Sealing Machines, for cellophane, other films, Model MPUS. One Diehl Mateer Powder Filler, Model 31A. All in good condition. Best offer. **Sparks Corporation**, 4111 Pechine Street, Philadelphia 28, Penna. Telephone IRvridge 3-7330.

FOR SALE—POTDEVIN MODEL 111-C Cellophane Bag Machine complete with electric eye and various sizes of formers. Excellent condition. Can be seen in operation. Will sell for best offer received. Reply Box 936, Modern Packaging.

FOR SALE—One 42 inch Cameron score type slitter for poly, cello. Model 26-4. 2½ yrs. old excellent condition. **Texas Plastics, Inc.**, Elsa, Texas.

FOR SALE—CORLEY-MILLER Model RL-36-120 packaging machine with automatic sheeter, electric eye and 10 ft. conveyor, variable speed drive, static eliminators, three hot plate attachments to handle printed cello or poly rolls. Machine 1 yr. old in perfect condition and fully equipped. **Magia Products**, 412 Halsey Street, Newark, N.J.

FOR SALE—Two-6 color flexographic Cottrell presses, roll to roll printers, 32" in width. Ideal for printing cellophane, paper and foil. May be seen in operation. Price, \$16,500. We also have available—1-4 color Holweg tail end printer, 31" wide. Price \$8500.00. Reply Box 942, Modern Packaging.

FOR SALE—40 TOLEDO SCALES 30-4644, \$1000 each; Amaco Heat Sealer, Model-D; Doughty Sealer (unused) floor type; Toledo Printography Scale, ticket type; Kold Hold Deep Freeze, 10 cubic ft; Metropolitan Sewing Machine, revolving table type, Union Special Model 21800-B; Vickers Hydraulic Units, 2305, 2008 on 60 gal. tanks with 10 HP. motors. Reply Box 944, Modern Packaging.

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WANTED—ONE SIMPLEX Model 4 or Model 1 cellophane bag machine with fold over bottom. **Texas Plastics, Inc.**, Elsa, Texas.

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PACKAGE ENGINEERS with experience in military packaging or good industrial packaging background. Training and experience in engineering or physics is desirable. For Washington division of nation-wide firm of packaging and handling consultants. Salaries in \$8000 to \$12,000 range depending on ability and experience. Reply Box 939, Modern Packaging.

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REPRESENTATIVES—Rapidly expanding converter specializing in small polyethylene tubular bags for industrial and general packaging of small parts and items, seeks representatives throughout the country. Bag sizes start at ½" width by 2" length. Straight commission. Protected territories and accounts. Replies strictly confidential. Box 935, Modern Packaging.

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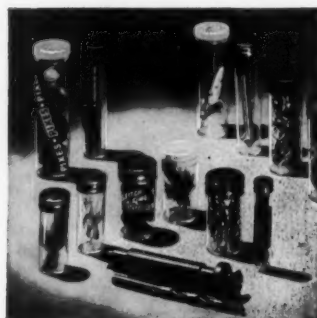
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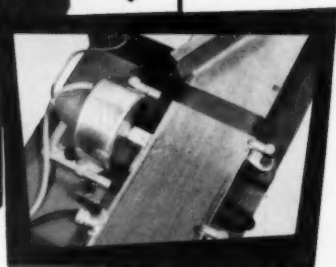
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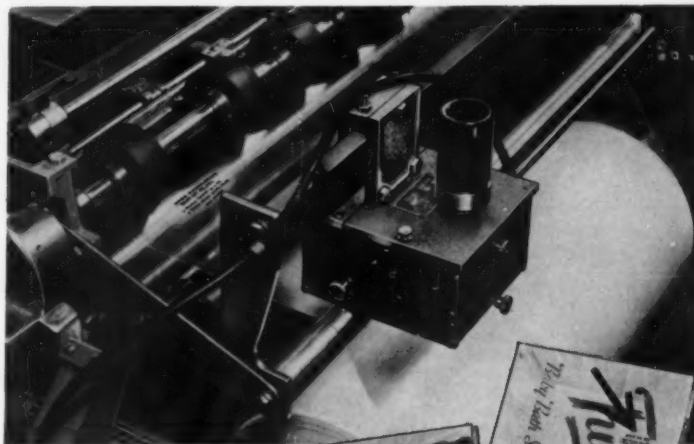
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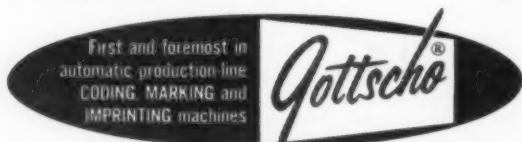


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